EXECUTIVE SUMMARY

6th Street Viaduct Seismic Improvement Project

LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 7 – Bridge Nos. 53C-1880 and 53-0595
EA 251200
Federal Project Number 5006 (342)
SCH # 2007081005

Final Environmental Impact Report/ Environmental Impact Statement and Section 4(f) Evaluation

Prepared by

City of Los Angeles
and
State of California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

October 2011

TABLE OF CONTENTS

1. Introduction and Background

The California Department of Transportation (Caltrans) and the City of Los Angeles (City) propose to undertake seismic improvement of the 6th Street Viaduct over the Los Angeles River (Bridge No. 53C-1880) and the 6th Street Overcrossing, which includes the US 101 Hollywood Freeway (Bridge No. 53-0595). The structure is located in a highly urbanized area just east of Downtown Los Angeles in the County of Los Angeles, California, as shown in Figure 1.

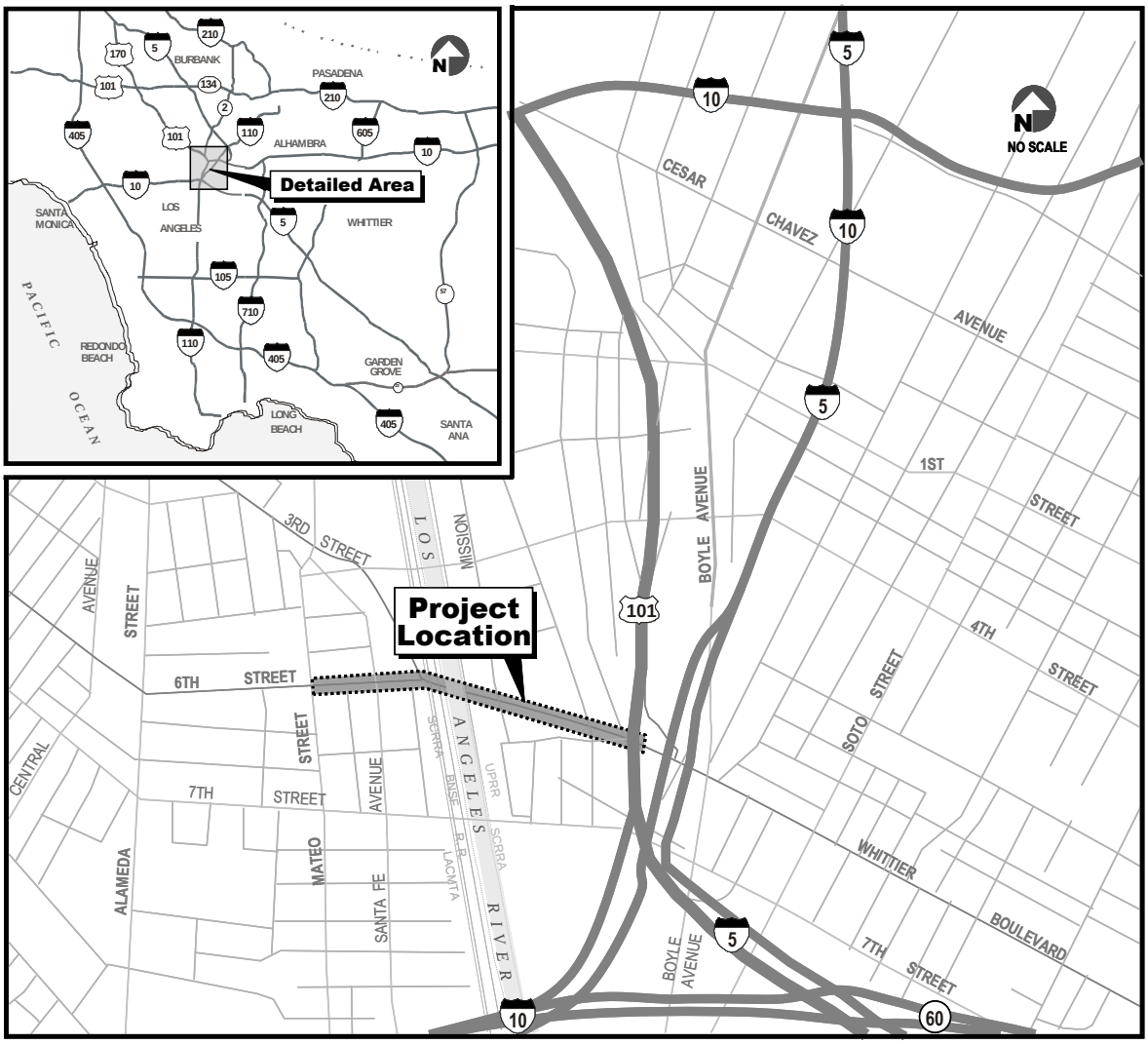

Figure 1 Project Location and Vicinity Maps

The 6th Street Viaduct crosses the Los Angeles River along an east-west alignment, connecting Downtown Los Angeles with the Boyle Heights Community to the east. Land uses along the north and south sides of the viaduct are predominantly industrial and commercial. A City Department of Public Works maintenance office is located within the area underneath the

viaduct on the west side of the river. An access tunnel, which is located under the viaduct on the west side of the river, provides access to the river from Santa Fe Avenue near the frontage road on the south side of the viaduct.

The Los Angeles River, which is contained within a trapezoidal concrete-lined channel, and multiple-track railroad corridors located along the river's east and west banks pass under the viaduct in a north-south direction. The Los Angeles River is a flood control channel that receives stormwater runoff from its 834-square-mile watershed, treated effluent from two wastewater treatment plants, and some rising groundwater in the Glendale Narrows area. The river discharges to an estuary in Queensway Bay in the Long Beach Harbor.

Several high-voltage transmission lines, owned and operated by the Los Angeles Department of Water and Power (LADWP), are also located along each bank of the river. Large steel LADWP transmission towers are adjacent to the viaduct on the south side. Figure 2 shows an aerial view of the project limits and surrounding land uses.

The proposed 6th Street Viaduct Seismic Improvement Project is included in the Final 2008 Regional Transportation Improvement Program (RTIP) and the Federal Transportation Improvement program (FTIP), in which the project is programed for $245 billion over a 6-year period, from fiscal years 2008/09 to 2013/14. The RTIP is currently being amended to include the total project cost of $401.2 million, and the actual cash flow for the project would extend through fiscal year 2017/2018. The Final Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) addresses the potential environmental impacts of various alternatives considered for the proposed project, including a No Action Alternative, retrofit alternative, and replacement alternative.

The EIR/EIS for this project was prepared in accordance with the Guidelines for CEQA (*California Code of Regulations*, Title 14 Sections 15000-15387); the Council on Environmental Quality (CEQ) Regulations implementing the National Environmental Policy Act (NEPA) (40 *Code of Federal Regulations* [CFR] 1500-1508); and the Federal Highway Administration (FHWA) Environmental Regulations (23 CFR 771) to inform the public and decision makers of the environmental effects of the 6th Street Viaduct Seismic Improvement Project. This document has been prepared jointly by Caltrans, the federal lead agency for NEPA, functioning as a designee of FHWA pursuant to 23 *United States Code* (U.S.C.) 327, and by the City of Los Angeles, who is the lead agency for CEQA.

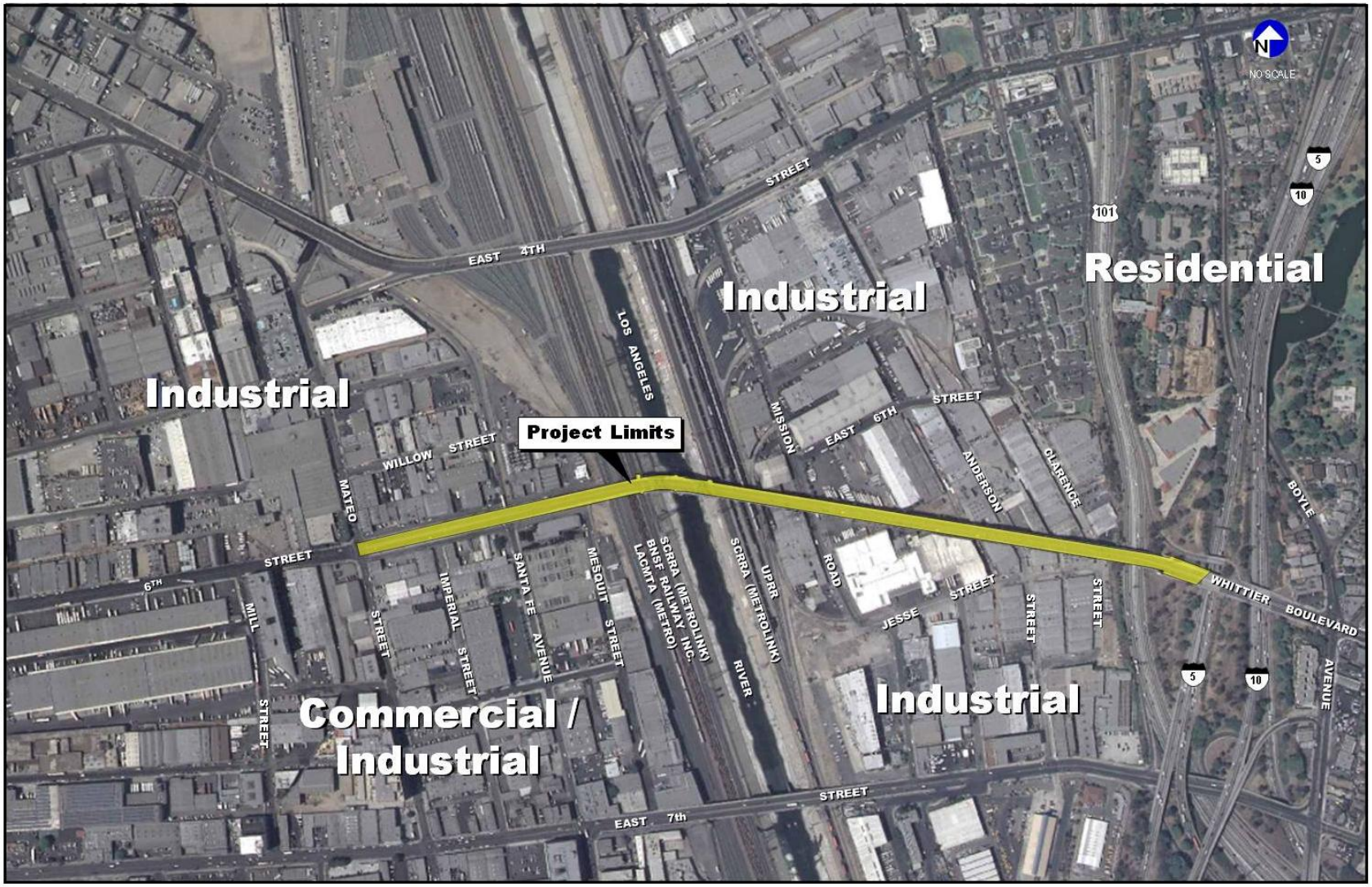

Figure 2 Aerial View of the Proposed Project Limits and Surrounding Land Uses

2. Purpose and Need

The 3,500–ft-long 6th Street Viaduct was constructed in 1932 using state-of-the-art concrete technology at that time. Over the last 75 years, concrete elements of the viaduct have cracked and deteriorated as a result of an internal chemical reaction called Alkali Silica Reaction (ASR), which is caused by the reactive aggregate used in the concrete. Because of this ongoing and irreversible chemical action, the 6th Street Viaduct's concrete has lost significant strength, and the structure is subject to failure under predictable seismic energy releases. The viaduct also has design deficiencies consisting of inadequate roadway width; out-of-specification bridge, approach railing, and approach rail ends; poor roadway alignment; and out-of-specification geometric and seismic design detail.

The purpose of the project is threefold:

- Preserve 6th Street as a viable east-west link between Boyle Heights and Downtown Los Angeles
- Reduce vulnerability of the 6th Street Viaduct in major earthquake events
- Resolve design deficiencies of the 6th Street Viaduct

The following discussion summarizes the present conditions and deficiencies of the 6th Street Viaduct that constitute the need for the proposed action.

2.1 Need to Preserve Viability of 6th Street Transportation Corridor

The 6th Street Viaduct is an important link between east Los Angeles communities, such as the Boyle Heights Community and Downtown Los Angeles, including the Arts District. The viaduct carries more than 13,000 vehicle trips per day compared to 12,690 vehicle trips per day along the 1st Street Viaduct and 17,680 vehicle trips per day along the 4th Street Viaduct, which are two other important links between East Los Angeles and the downtown area.

In addition to being an important link between east Los Angeles communities and Downtown Los Angeles, many Boyle Heights residents view the viaduct as a community landmark and an

iconic symbol of the City of Los Angeles as a whole. Residents in the Arts District also view the viaduct as an important landmark for the City.

2.2 Need to Reduce Vulnerability to Seismic Collapse

The 6th Street Viaduct is classified as a Category I structure by Caltrans[1], and mandatory seismic retrofit is required. The viaduct was constructed in 1932 using state-of-the-art concrete technology at that time and the use of an onsite concrete batch plant. Over the last 75 years, concrete elements of the viaduct have cracked and deteriorated as a result of the ASR. Because of this ongoing and irreversible chemical action, the 6th Street Viaduct's concrete has lost significant strength, and the structure is subject to failure under predictable seismic energy releases.

Cracks due to ASR

Figure 3 graphically demonstrates the findings of the materials testing program in various elements of the 6th Street Viaduct due to ASR, conducted in 2002[2].

The *Final Seismic Retrofit Strategy Report*, completed in 2004[3] following the extensive material testing program mentioned earlier, concluded that the viaduct, in its current state of material deterioration and lack of structural strength, is subject to failure under loadings associated with a major earthquake. The probability that the viaduct will fail under major seismic events exceeds 70 percent in 50 years. This vulnerability level is extremely high compared to the normally accepted collapse probability of 10 percent or less over 50 years, as defined by the American Association of State Highway and Transportation Officials (AASHTO) and Caltrans. The high risk of collapse and continuing concrete deterioration indicates the need for timely corrective action to either seismically retrofit the viaduct or replace it.

[1] A Category 1 structure is a highway structure that has been classified by Caltrans to be vulnerable to collapse during a design-level earthquake. This classification of structure requires mandatory seismic retrofit.

[2] Sixth Street Viaduct Over Los Angeles River (Bridge No. 53C-1880): Field Sampling and Testing Program Final Report, February 2002.

[3] Sixth Street Viaduct Final Seismic Retrofit Strategy Report. 2004.

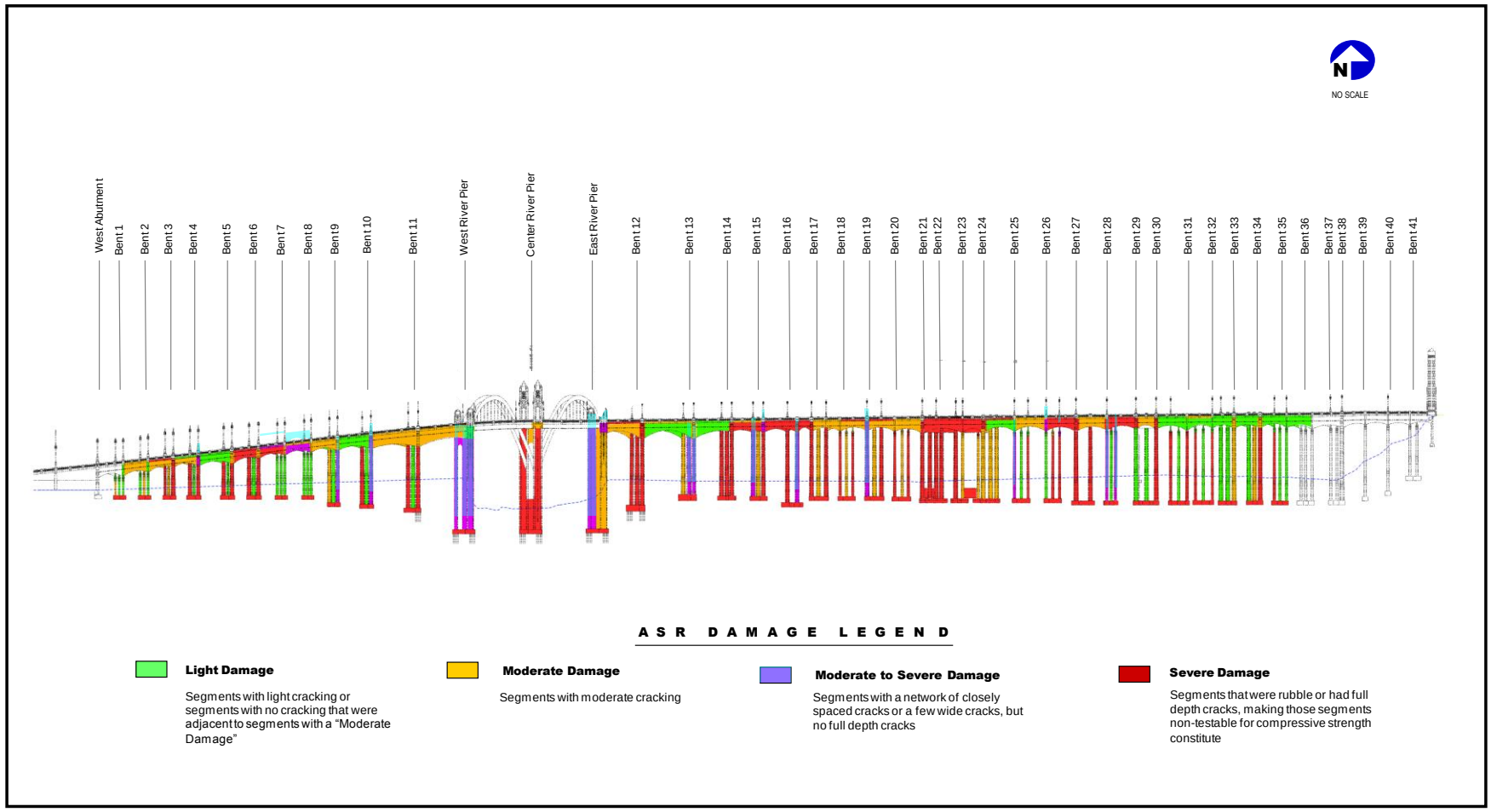

Figure 3 Level of Damage in Various Elements of the 6th Street Viaduct due to ASR

2.3 Need Resolve Design Deficiencies

The National Bridge Inspection Standards (23 CFR 650) apply to all structures defined as bridges located on public roads. Inspection records and bridge inventories are maintained in accordance with the standards through the Caltrans Structure Maintenance and Investigations *Bridge Inspection Records Information* report. Each bridge is to be inspected at regular intervals not to exceed 2 years.

Based upon the inspection records and bridge inventory data, a sufficiency rating is calculated for a particular bridge. The sufficiency rating is a method of evaluating highway bridge data by calculation of four separate factors to obtain a numeric value that is indicative of the adequacy of the bridge to remain in service. The result of this method is a percentage where 100 percent would represent an entirely sufficient bridge and zero percent would represent an entirely insufficient (deficient) bridge. These factors include:

1) Structural adequacy and safety, up to 55 percent
2) Serviceability and functional obsolescence, up to 30 percent
3) Essentiality for public use, up to 15 percent
4) Special reductions, up to 13 percent

The City-owned viaduct (Bridge No. 53C-1880) has a sufficiency rating of 52.4[4]. The major factors contributing to the low sufficiency rating of the structure include:

- Cracking and condition of deck, superstructure, and substructure elements
- Inadequate roadway width
- Out of specification bridge and approach railing, and approach rail ends
- Poor roadway alignment
- Out of specification geometric and seismic detail design

While the Caltrans-owned bridge (Bridge No. 53-0595) was retrofitted in 1995, roadway width and railing deficiencies were not corrected, nor was the ASR condition resolved.

3. Alternatives Considered

The Project Development Team (PDT) conducted study and research of 10 retrofit schemes, 20 replacement alignment corridors, and 15 bridge types (concepts) to identify the retrofit and replacement schemes for evaluation in the EIR/EIS. Input from the general public, interested

[4] Caltrans. 2006. Bridge Inspection Records Information, Structure Inventory and Appraisal Report, Bridge No. 53C-1880, California Department of Transportation, Structure Maintenance and Investigation. August.

parties, and world-renowned experts were considered as part of the alternative screening and ranking to finalize the alternatives to be carried forward for further study.

The evaluation criteria used for screening the retrofit schemes and alignment corridors are summarized below:

- Ability to meet the project purpose and need
- Constructability
- Life span of the facility
- Construction cost
- Maintenance cost
- Extent of environmental impact and community disruption
- Structural safety
- Historic preservation
- Other enhancement opportunities

The evaluation criteria used for screening the bridge concepts include:

- Seismic performance
- Geometric flexibility
- Roadway and pedestrian safety
- Future river access from deck level
- Aesthetics
- Historical compatibility
- Design schedule
- Hydraulic impacts
- Environmental impacts
- Utility impacts
- Railroad impacts
- Construction cost
- Construction schedule
- Construction risk
- Constructability
- Maintenance and serviceability

Based on the results of the alternatives evaluation, a No Action Alternative, a Retrofit Alternative, and a Replacement Alternative with three (3) alignments and five (5) bridge types were identified as the most reasonable and feasible for full environmental impact assessment.

3.1 Alternative 1 – No Action

This alternative provides neither retrofit nor replacement of the seismically and functionally deficient 6th Street Viaduct. The ASR deterioration of the structure would continue, and the seismic vulnerabilities would worsen as the concrete strength continues to deteriorate. The City would provide ongoing inspection and maintenance on the viaduct to keep it open to traffic as long as possible, given the ongoing ASR deterioration and seismic vulnerabilities. The 6th Street Viaduct would remain at its existing roadway width of 46 ft, which accommodates two travel lanes in each direction with no outside shoulders or safety median. None of the design deficiencies would be corrected under this alternative. Implementation of Alternative 1 would not meet the project purpose and need.

Under this alternative, the viaduct may be determined to be unserviceable by the City of Los Angeles Bureau of Engineering and Caltrans due to advanced ASR deterioration or a major seismic event in the future, neither of which can be predicted. Under such an event, the City would take the viaduct out of service and seek emergency funding sources to replace it.

3.2 Alternative 2 – Viaduct Retrofit

Two retrofit schemes were initially identified for detailed study and evaluation in the EIR/EIS, including Infill Wall and Heavy Steel Casing, and Substructure Replacement; however, the Substructure Replacement scheme was later withdrawn from further evaluation because of its higher cost compared to the Infill Wall and Heavy Steel Casing scheme to obtain similar results of the same design life.

Under this alternative, the viaduct's columns would be retrofitted by encasing them with steel, and infill walls would be constructed between selected columns. In addition, new foundations, grade beams, retrofitting of bent caps, and closure of some expansion joints in the superstructure would be constructed in combination with the column retrofits. The structure would be retrofitted to the minimal standard of "no collapse" for a major earthquake (a magnitude 7.3 on the Richter scale).

Alternative Components

Column Retrofit. Under this retrofit alternative, 76 columns (out of a total of 114) would be encased, of which 26 would utilize 7/8-inch plates and 50 would utilize 5/8-inch steel plates. A 6-inch layer of architectural mortar would conceal the exposed plates, channels, and bars (Figure 4). All exterior columns with "Light" or "Moderate" damage ratings would also be encased to account for future concrete degradation due to ASR expansion. Encasing all exterior columns would also maintain visual balance and consistency for the retrofitted structure. The interior columns in Bents 1, 4, and 5 would be encased to enhance their shear strengths. Bent 12 would

be excluded from retrofitting because of the lack of space available for construction of the column encasement due to the proximity of railroad tracks.

Infill Walls, New Foundations, Grade Beams, and Closure of Expansion Joints. Infill shear walls would be constructed between the columns to reduce transverse seismic movements of the structure. Grade beams would be constructed below ground between the existing pile caps to reduce longitudinal seismic movement of the structure. Expansion joints in the superstructure would be reconstructed at Bents 27 and 33, connecting adjacent spans to reduce seismic longitudinal displacement demands for the East Approach Spans. Figure 5 is an artist's rendering of the retrofitting with infill wall.

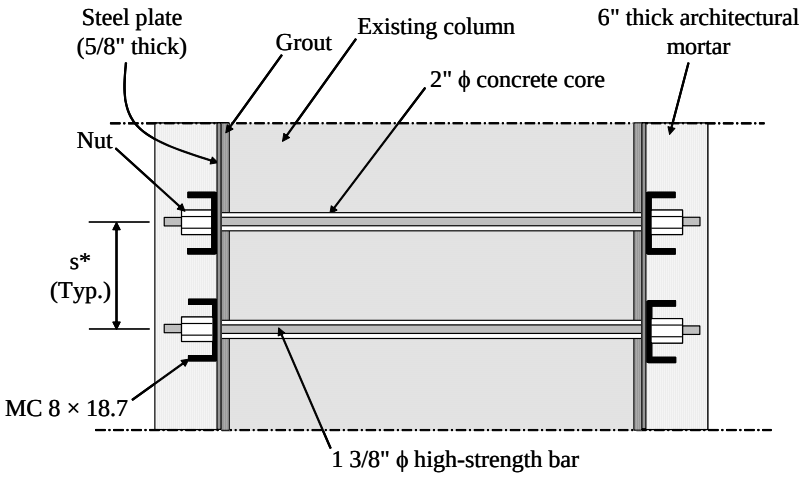

Figure 4 Steel Encasement of Columns

Bent Caps Retrofit. Retrofitting of bent caps would ensure that the expected seismic damage would take place in a controlled fashion. Retrofitting of bent caps for flexural strength enhancement is proposed at 16 bents (excluding Bents 27 and 33 where expansion joints would be closed). Bent cap retrofit would be achieved by means of concrete bolsters, which would be bonded to the existing bent caps by dowels that run through pre-drilled cores in the bent caps. Continuity of the concrete bolsters along the length of the bent cap would be achieved by post-tensioning of high-strength bars that would run through pre-drilled cores in the superstructure girders (see Figure 6). The post-tensioning bars would be anchored at their ends by exterior steel plates; these exposed plates and the bars would also be concealed by mortar.

Bent caps at locations of expansion joints would be retrofitted, as shown schematically in Figures 7 and 8. The positive flexural moment capacity would be enhanced by adding drop caps at the soffit of the existing bent caps. The new drop caps would be bonded to the existing bent caps by dowels. Steel plates would be placed along the sides of the bent caps and bonded to the concrete by means of high-strength bars inside core holes. The steel plates would enhance flexural capacity and resistance to horizontal shear.

Existing View

View after Retrofitting (showing a sample of in-fill wall at one column)

Figure 5 Artist's Rendering of Viaduct Retrofit

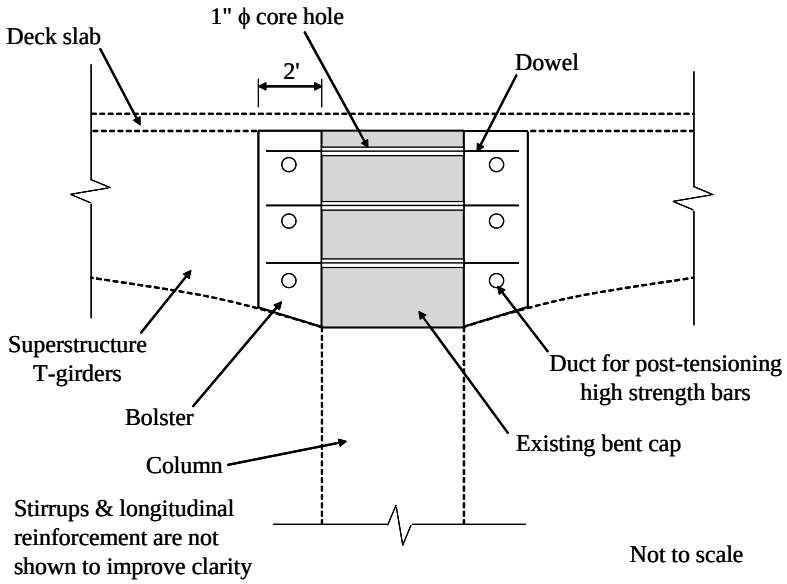

Figure 6 Retrofitting of Bent Caps by Concrete Bolsters

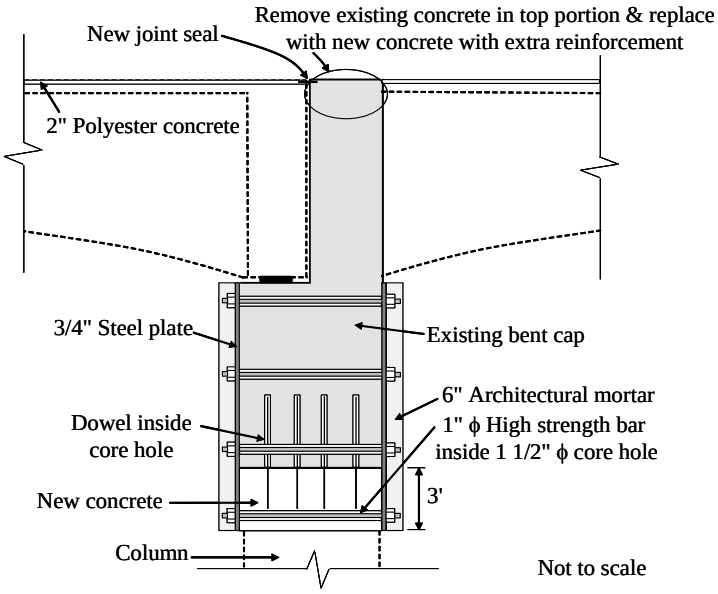

Figure 7 Bent Cap Retrofit at Expansion Joints (one simply supported span)

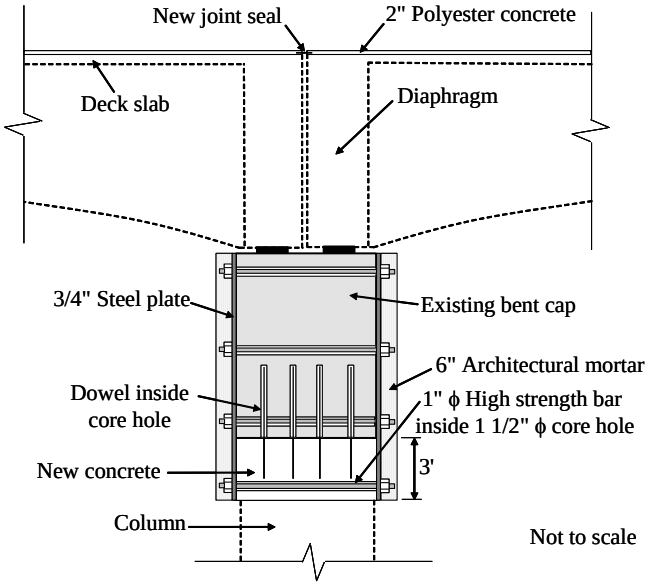

Figure 8 Bent Cap Retrofit at Expansion Joints
(two simply supported spans)

River Piers Retrofit. The river piers would be retrofitted by placing infill walls between columns at the West and East River Piers. In addition, new pile foundations would be constructed around the existing foundations at the West and East River Piers to confine the poor lap-splices of the longitudinal column reinforcement and to allow column bases to develop their full plastic moment capacities.

New Expansion Joint Seals. Installation of new expansion joint seals is essential for long-term efficiency of the retrofit design because it helps protect the substructure from direct water flow onto concrete members. Additional moisture at the concrete surface can accelerate the ASR and subsequent concrete damage. Figures 7 and 8 show the proposed new expansion joint seals.

Design Life

The current design standard for seismic retrofit is to prevent failure (collapse) of the structure when it is subject to the maximum credible earthquake (MCE). The retrofit design life expectancy to prevent seismic collapse under the MCE event and loss of structural strength due to ASR deterioration is approximately 30 years. Based on AASHTO guidelines, design life is the period of time that a bridge is expected to be in operation. New bridge structures are designed to have a structural design life of 75 years.

Design Standards

The viaduct's roadway does not meet the City's design standards for a Secondary Highway, and substantial physical changes to the superstructure would not be part of this alternative. Existing

nonstandard viaduct features would continue to exist (i.e., inadequate sidewalk width; absence of safety median and shoulders; and inadequate stopping sight distances). The retrofit alternative would also not replace the existing barrier rails, which do not meet current crash-test standards. Consistent with Caltrans requirements, the retrofit design would only be for the prevention of collapse under the design seismic event, and the damaged bridge would have to be replaced after a major earthquake.

Estimated Alternative Cost

The construction and ROW costs of Alternative 2 – Viaduct Retrofit using the infill wall and heavy steel casing method are estimated at $199 million (as of 4th quarter 2010).

3.3 Alternative 3 – Viaduct Replacement

This alternative would construct a new viaduct along one of the three alignments under study. The entire viaduct structure (including Bridge Nos. 53C-1880 and 53-0595) would be constructed using a Cast-in-Place Multiple Cell Post-Tensioned Box Girder. The main-span bridge type would be selected from one of the five concepts under consideration. The design life expectancy of Alternative 3 is 75 years.

3.3.1 Viaduct Alignments

Three viaduct replacement alignments (i.e., 3A, 3B, and 3C) were carried forward for design consideration, as shown in Figure 9. A description of each alignment is provided below.

Alignment 3A. The replacement structure would be built along a new horizontal alignment. The new structure within the City's ROW would have a cross section that meets secondary highway standards as required by the City of Los Angeles Department of Transportation (LADOT). The new roadway would have a maximum width of 70 ft (curb-to-curb) and would consist of two 11-ft-wide lanes in each direction, a median with a maximum width of 10 ft, and outside shoulders with a maximum width of 8 ft, which would incorporate future bicycle lanes. The proposed cross section would also allow for sidewalks with a maximum width of 10 ft. Bridge rails located on the outside edges of the structure would have a width of 2 ft. The typical width to the outside of the bridge rails would be 94 ft maximum.

The cross section within Caltrans' ROW (over US 101) would be slightly different. In this section, the viaduct roadway would be 74 ft, curb to curb, consisting of two 12-ft-wide lanes in each direction, a 10-ft-wide median, and 8-ft-wide shoulders. The proposed cross section also allows for 8-ft-wide sidewalks on both sides of the structure.

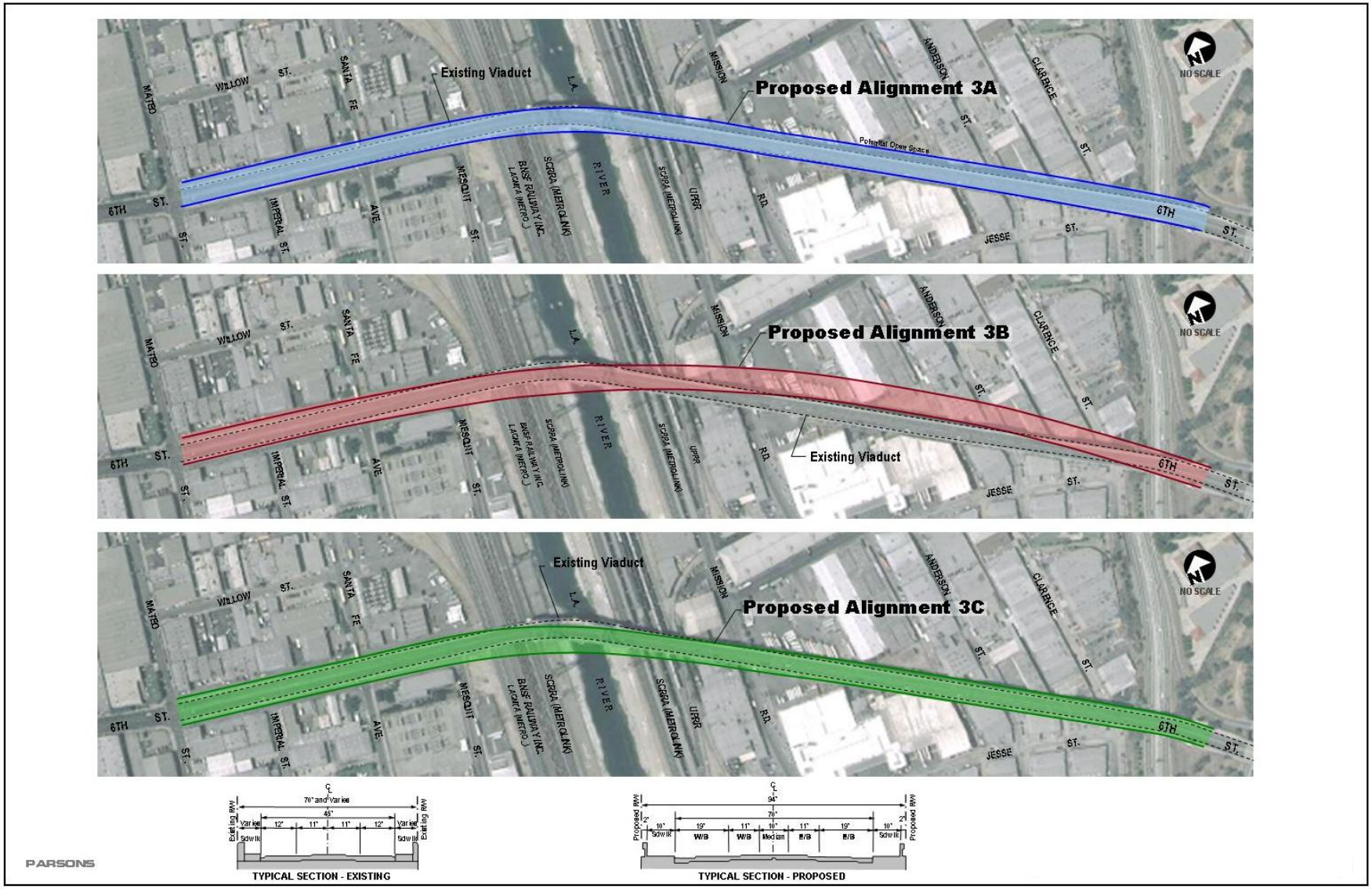

Figure 9 Alignment 3A, 3B, and 3C

The new viaduct structure would extend east from Mateo Street to just east of US 101. The new roadway design has a transition on the west side of the river from the existing street width at Mill Street to the ultimate width of the proposed 6th Street Viaduct Replacement Alternative at Mateo Street. Because of the wider viaduct replacement structure, the north side of the viaduct footprint would extend farther to the north, while the south side of the footprint would remain essentially at the same location except for the segment of the alignment over the Los Angeles River, which would be shifted slightly to the south to improve the horizontal curve radius and provide improved safety.

Alignment 3B (Preferred Alternative). The new viaduct would be designed with the same cross section as Alignment 3A. This option proposes a horizontally curved alignment from Santa Fe Avenue to west of US 101. The curve in the alignment is more gradual than Alignment 3A. This alignment, similar to Alignment 3A, maintains its present location on the south side of the existing bridge from Mateo Street to Santa Fe Avenue, and the alignment shifts to the north from Santa Fe Avenue to the east as it crosses over the river. This alignment would swing to the north approximately 85 ft farther than the existing alignment on the east side of the river, which would upgrade the existing nonstandard curve radius at the east end.

A modification to Alignment 3B was evaluated in an effort to reduce ROW impacts in response to public input; however, the 3B modified design option uses smaller radius curves and is geometrically inferior to Alignment 3B. In addition, cost savings would be less than 1 percent of Alignment 3B, which is considered negligible; therefore, the 3B modified design option was not carried forward for further consideration as a full alignment alternative for the purpose of environmental analysis in the EIR/EIS.

Alignment 3C. The new viaduct would be designed with the same cross section as Alignment 3A. To accommodate the wider viaduct, the footprint of the viaduct would be extended on the north and south sides, except for the area between Mateo Street and Mesquit Street, which would be wider to the north only. The segment that extends from the river to the east would be constructed so that the columns and foundations lie within existing ROW and the viaduct roadway deck extends beyond the existing ROW over adjacent private properties.

3.3.2 Bridge Concepts

Fifteen (15) bridge concepts (types) were developed during the initial phase of project studies and were screened down to five concepts (i.e., Concepts 1, 2, 3, 4, and 5) as viable designs for further consideration. Refinement of Bridge Concepts 1 and 4 (called 1A and 4A) were later added as a result of public and agency input during the public review period of the Draft EIR/EIS. Each bridge concept, including refined Concepts 1A and 4A, could be constructed on

any of the viaduct replacement alignments (i.e., 3A, 3B, or 3C). The City will refine final design of the bridge replacement as a means to ensure selection of an architecturally distinctive and cost-effective design.

Bridge Concept 1 – Main Span Replication. The new replica bridge could capture the essence of the old landmark bridge with its decorative off-set corner elements, steel arches, "deco" detailing, and off-set of planes at the pier walls, as well as the corners with decorative dentil detailing below the concrete barrier along the entire length of the viaduct. The structure could mimic the original design with complimentary dual arches. The new main center pylon with its belvederes would maintain the pedestrian viewing areas of the original 1932-designed belvederes. In addition, the pylons, which historically extended above the bridge deck until removal in the 1950s, could be replicated in the replacement structure of Bridge Concept 1, as shown in Figure 10.

Figure 10 Computer Model of Bridge Concept 1

Bridge Concept 1A would be identical to Bridge Concept 1 between the riverbanks, mimicking the original design with complimentary dual arches and main center pylon with its belvederes maintaining the pedestrian viewing areas of the original 1932-designed belvederes. Unlike Bridge Concept 1, which employs long-span box girders with fewer columns east and west of the river similar to the other replacement concepts, refinement Bridge Concept 1A would replicate the short-span haunched girders with numerous support columns of the original structure from the riverbanks to the ends of the viaduct. However, the total project cost for Concept 1A was found to be significantly higher than the other bridge concepts and was not considered a reasonable expenditure of public funds; therefore, Bridge Concept 1A was eliminated from further consideration.

Bridge Concept 2 – Cast-in-place Box Girder with Steel Tied Arch Pedestrian Ways. The design of Bridge Concept 2 could employ a combination of some of the structural elements proposed for Bridge Concept 1 (Figure 11). The main span of the bridge would be a concrete box girder, with gateway monuments at each end. In addition, the pedestrian path would be separated from the bridge deck at the main span, allowing pedestrians to enjoy a different experience while crossing the bridge.

Figure 11 Computer Model of Bridge Concept 2

The main-span piers would act as entrance monuments and become an integral component in the massing and scale of the bridge. The arches on the main span would anchor themselves to these vertical piers, allowing them to act as a main-span gateway to the flow of traffic on the bridge. The pedestrian and driver would take a visual cue as to where the river edges begin and end.

Bridge Concept 3 – Steel Half-Through Arch with CIP Box Girder Approaches. The design of Bridge Concept 3 would pick up structural elements found on the original half-through arch of the landmark main span (Figure 12). Reaching over the Los Angeles River, the new half-through arches would intersect the bridge deck and nestle into the embankment piers. The lateral tie beams between the arches above the deck could be similar in cross section to that of the arch and vertical structural members of the original bridge.

Figure 12 Computer Model of Bridge Concept 3

Bridge Concept 4 – Extradosed Concrete Box Girder (Preferred Alternative). Bridge Concept 4, a contemporary cable-supported structure, would present a 21st century structural principle that introduces a relatively new technology to the United States (Figure 13). This extradosed concept bridge could invoke a uniquely modern statement over the river.

Figure 13 Computer Model of Bridge Concept 4

The PDT recommended the design principle of Bridge Concept 4, cable-supported river spans with one central pier that clear the railroad tracks and avoids the overhead 230-kilovolt (kV) power lines, be the preferred alternative. A range of design expressions of this principle, including Bridge Concept 4A with six towers representing 6th Street as one example (see Figure 14), could be considered during final design.

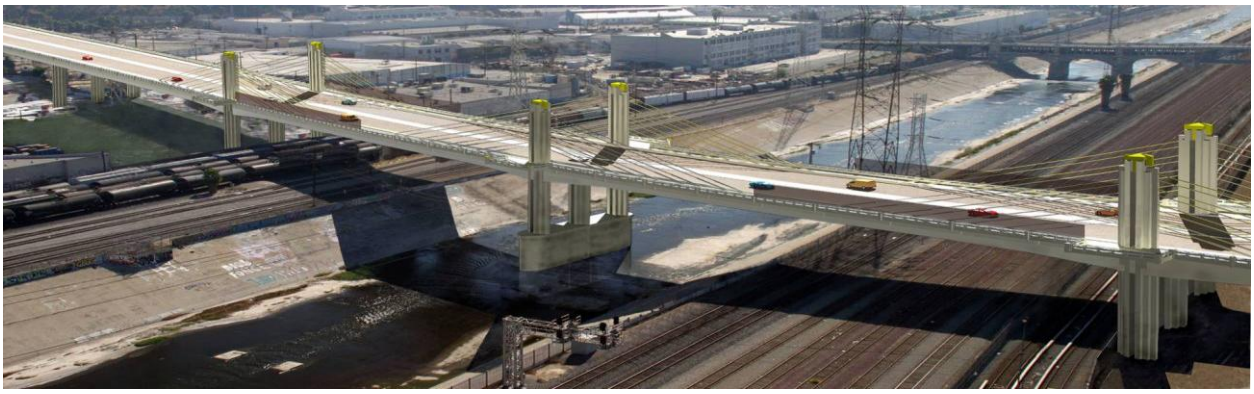

Figure 14 Computer Model of Bridge Concept 4A

Bridge Concept 5 – Extradosed Concrete Box Girder with Single Pylon. Bridge Concept 5 is another potential design expression of the extradosed bridge principle. This expression features extradosed structures with towers and cables aligned along the center of the bridge and viaduct approaches (Figure 15). This particular expression utilizes six bridge towers as symbolically representative of 6th Street. The top of each tower could be illuminated to enhance the nighttime effect.

Figure 15 Computer Model of Bridge Concept 5

3.3.3 Other Roadway Improvements

In addition to improving the geometry of the 6th Street Viaduct, other areas of consideration for roadway design include the transitions from the viaduct at the east and west ends to the existing street (see Figures 16 and 17), as well as the local streets under the viaduct.

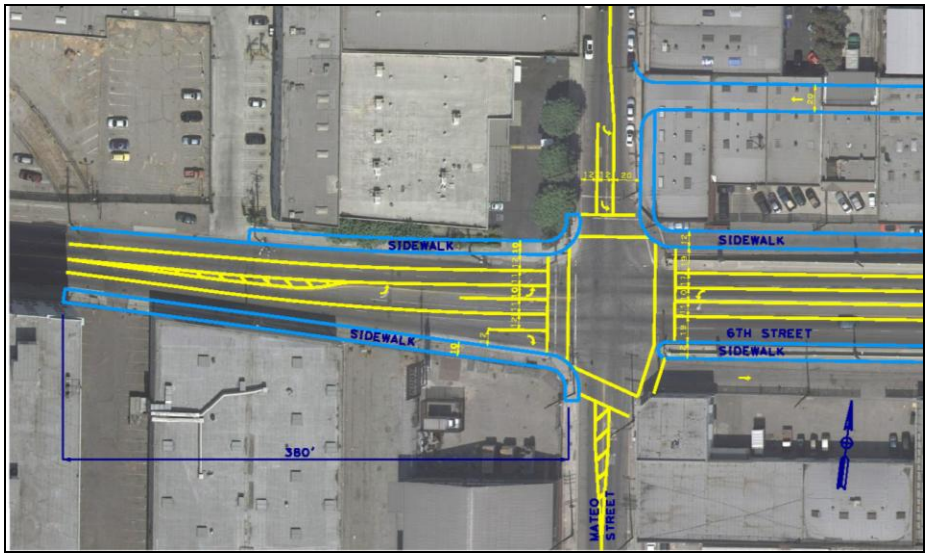

Figure 16 West End Transition Configuration

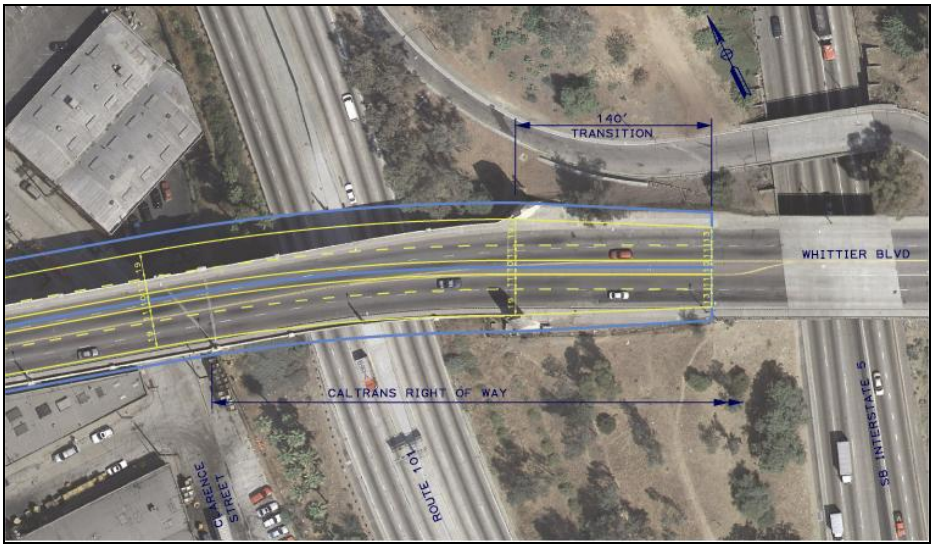

Figure 17 East End Transition Configuration

On Mateo Street at the west end of the viaduct, the proposed section would be aligned with the existing lane configuration by using a 380-ft transition that would consist of striping and minor modifications to the existing sidewalk and curb and gutter. The existing traffic signal masts would be modified to match the proposed transitions. A left-turn lane along Mateo Street would be provided to allow southbound traffic to access the eastbound direction on 6th Street. This improvement would provide a safer lane configuration and better vehicular traffic movement.

On the east end of the viaduct, the proposed 94-ft section would taper to match the existing 58-ft section through a 165-ft transition. No additional lanes would be added, and no modifications to the existing sidewalk would be made.

As part of the construction of any alignment and bridge concept under Alternative 3, several roadway improvements at nearby intersections would be undertaken to maintain traffic operation during the construction period when the viaduct would have to be closed.

- 6th Street/Boyle Avenue Intersection: The proposed operational improvements at this intersection would (1) modify signal phasing for the east-west direction to run as opposed phasing, (2) convert the Number 1 westbound through lane to a left-turn lane, (3) modify signal phasing to add a southbound left-turn phase, and (4) extend the southbound left-turn lane by approximately 75 ft.
- 7th Street/Boyle Avenue Intersection: Signal phasing would be modified to add an eastbound left-turn phase.
- 3rd Street/Central Avenue Intersection: Signal phasing would be modified to add a northbound left-turn phase.
- 3rd Street/Alameda Street Intersection: Signal phasing would be modified to add a northbound left-turn phase.
- 6th Street/Alameda Street Intersection: Signal phasing would be modified to add a northbound left-turn phase.
- 6th Street/Central Avenue Intersection: Signal phasing would be modified to add a southbound left-turn phase.
- 5th Street/Central Avenue Intersection: New traffic signals would be installed at this location.

In addition to modifying the signal phasing of traffic signals at nearby intersections, several other intersections would be impacted by the traffic detours. Mitigation measures have been proposed to mitigate these impacts as follows:

- 4th Street and US 101 Southbound Off-Ramp: Install new traffic signals and connect to Los Angeles City Automated Traffic Surveillance and Control (ATSAC) System.
- 4th Street and US 101 Southbound On-Ramp: Install new traffic signal and connect to Los Angeles City ATSAC System.
- 4th Street and Soto Street: Restripe to add an eastbound right-turn lane.

Design Standards

The proposed replacement alternative would be designed to meet the City's current street and street lighting design standards. The structural design for the replacement alternatives would meet AASHTO bridge design standards and Caltrans seismic design criteria.

Estimated Cost for Replacement Alternative

Table 1 presents estimated costs of each replacement bridge concept constructed on the three alignments evaluated. As can be seen, the construction and ROW costs for Bridge Concepts 1 through 5 vary from a low of $308 million to a high of $367 million (with the eliminated Bridge Concept 1A estimated at $409 million) for Alignment 3A; from a low of $306 million to a high of $369 million for Alignment 3B (with the eliminated Bridge Concept 1A estimated at $405 million); and from a low of $320 million to a high of $371 million for Alignment 3C. All estimates are based on 4th quarter 2010 costs.

Table 1. Viaduct Replacement Estimated Costs

Cost Item	Cost Estimate (midyear of construction dollars 2014/2015)		
	Alignment 3A	Alignment 3B	Alignment 3C
Bridge Concept 1			
Construction cost	240,735,000	237,542,000	254,505,000
ROW	96,411,000	97,807,000	94,375,000
TOTAL	337,146,000	335,349,000	348,880,000
Bridge Concept 1A			
Construction cost	306,150,000	302,635,000	NC
ROW	102,421,000	102,421,000	NC
TOTAL	408,571,000	405,056,000	NC
Bridge Concept 2			
Construction cost	211,280,000	208,156,000	225,263,000
ROW	96,411,000	97,807,000	94,375,000
TOTAL	307,691,000	305,963,000	319,638,000
Bridge Concept 3			
Construction cost	222,007,000	218,916,000	235,971,000
ROW	96,411,000	97,807,000	94,375,000
TOTAL	318,418,000	316,723,000	330,346,000
Bridge Concept 4			
Construction cost	210,408,000	207,330,000	224,608,000
ROW	97,746,000	98,605,000	95,261,000
TOTAL	308,154,000	305,935,000	319,869,000
Bridge Concept 4A			
Construction cost	223,523,000	220,008,000	237,723,000
ROW	97,746,000	98,605,000	95,261,000
TOTAL	321,269,000	318,613,000	332,984,000
Bridge Concept 5			
Construction cost	269,165,000	270,095,000	276,265,000
ROW	97,746,000	98,605,000	95,261,000
TOTAL	366,911,000	368,700,000	371,526,000

Cost Estimates as of 4th quarter 2010.

NC Bridge Concept 1A is not econonically possible on Alignment 3C because columns of the approaches would require taking ROW along the south and north edges of the viaduct.

4. Environmental Impacts

Environmental impacts associated with the No Action Alternative and two build Alternatives were fully analyzed according to federal, state, and local requirements, and the findings are summarized in Table 2.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Land Use and Planning	Would not provide the City with an opportunity to designate 6th Street along the 6th Street Viaduct as a bikeway. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Up to 19 businesses would be affected, 2 of which would be subject to relocation. These right-of-way (ROW) displacements would be inconsistent with the City of Los Angeles Industrial Land Use Policy objective of preserving the industrial area and employment. In addition, the ROW displacement would be inconsistent with the objective of the two redevelopment projects administered by the Community Redevelopment Agency of the City of Los Angeles. • Would not provide the City with an opportunity to designate 6th Street along the 6th Street Viaduct as a bikeway. • Would provide a seismically safe bridge, with a 30-year design life, between Boyle Heights and Downtown Los Angeles to support the objectives of various adopted plans and policies.	• Up to 30 businesses would be affected, 11 of which would be subject to relocation. These businesses are located in the designated "industrial preservation and employment protection zone," the proposed action would be inconsistent with the City of Los Angeles Industrial Land Use Policy objective of preserving the industrial area and employment. In addition, the ROW displacement would be inconsistent with the objective of the two redevelopment projects administered by the Community Redevelopment Agency of the City of Los Angeles. • Would have a bikeway and standard sidewalk on both sides of the viaduct. • Would provide a seismically safe bridge, with a 75-year design life, between Boyle Heights and Downtown Los Angeles to support the objectives of various adopted plans and policies.	• Up to 33 businesses would be affected, 11 of which would be subject to relocation under Alignment 3B. These businesses are located in the designated "industrial preservation and employment protection zone." Inconsistent with the City of Los Angeles Industrial Land Use Policy objective of preserving the industrial area and employment. In addition, the ROW displacement would be inconsistent with the objective of the two redevelopment projects administered by the Community Redevelopment Agency of the City of Los Angeles. • Would have a bikeway and standard sidewalk on both sides of the viaduct. • Would provide a seismically safe link, with a 75-year design life, between Boyle Heights and Downtown Los Angeles to support the objectives of various adopted plans and policies.	• Up to 30 businesses would be affected, 8 of which would be subject to relocation. These businesses are located in the designated "industrial preservation and employment protection zone.". Inconsistent with the City of Los Angeles Industrial Land Use Policy objective of preserving the industrial area and employment. In addition, the ROW displacement would be inconsistent with the objective of the two redevelopment projects administered by the Community Redevelopment Agency of the City of Los Angeles. • Would have a bikeway and standard sidewalk on both sides of the viaduct. • Would provide a seismically safe bridge, with a 75-year design life, between Boyle Heights and Downtown Los Angeles to support the objectives of various adopted plans and policies. •

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Land Use and Planning (continued)		• Would provide less redevelopment opportunity for the area in the immediate vicinity of the viaduct.	• Would provide redevelopment opportunities for the unused portion of the acquired land in the immediate vicinity of the viaduct. • Impact level would be the same for any bridge concept.	• Impact level would be the same for any bridge concept. • Would provide redevelopment opportunities for the unused portion of the acquired land in the immediate vicinity of the viaduct.	• Would provide redevelopment opportunities for the unused portion of the acquired land in the immediate vicinity of the viaduct. • Impact level would be the same for any bridge concept.
Community Character and Cohesion	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Community disconnection could occur on a temporary basis during construction.	• Community disconnection could occur on a temporary basis during construction. • Loss of historic resource and community landmark to which many residents are attached. • Based on some input from the public, Bridge Concept 1 (main span replication) would likely be perceived as keeping the old community icon, whereas Concepts 4, 4A, and 5 (modern cable-supported bridge) would be viewed as a new community icon.	Same as Alignment 3A.	Same as Alignment 3A.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Relocation and Business Disruption	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Construction would require a partial lane closure on the 6th Street Viaduct. Temporary blockage of roadways would occur during construction due to the required partial traffic lane closure and construction equipment movement. • Up to 19 businesses would be affected, 2 of which would be subject to relocation. • Minimal employment impacts.	• The viaduct and all acquired buildings would be first removed. Roadway blockage to the remaining businesses would temporarily occur during the demolition and construction activities. • Up to 30 businesses would be affected, 11 of which would be subject to relocation. • Approximately 200 employees may experience temporary job loss. Long-term job loss is not anticipated because most of the affected businesses have expressed interest in staying in Downtown Los Angeles. • Impact level would be the same for any bridge concept.	• The viaduct and all acquired buildings would be first removed. Roadway blockage to the remaining businesses would temporarily occur during the demolition and construction activities. • Up to 33 businesses would be affected, 11 of which would be subject to relocation under Alignment 3B. • Approximately 200 employees may experience temporary job loss. Long-term job loss is not anticipated because most of the affected businesses have expressed interest in staying in Downtown Los Angeles. • Impact level would be the same for any bridge concept.	• Although many buildings adjacent to the bridge would not have to relocate, roadway blockage to these businesses would cause operational disruption during the 4-year demolition and construction period. • Up to 30 businesses would be affected, 8 of which would be subject to relocation. • Approximately 200 employees may experience temporary job loss. Long-term job loss is not anticipated because most of the affected businesses have expressed interest in staying in Downtown Los Angeles. • Impact level would be the same for any bridge concept.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Environmental Justice	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• The project study area contains predominantly minority and low-income populations compared to the larger area within the city and county of Los Angeles. Construction would require partial lane closures on the 6th Street Viaduct. Construction of Alternative 2 would cause disproportionately high adverse effects on minority and/or low-income populations living closer to the construction zone as per Executive Order 12898 regarding environmental justice.	• Construction would require full closure of the 6th Street Viaduct. Construction of the Replacement Alternative would cause disproportionately high adverse effects on minority and/or low-income populations who live closer to the viaduct and the proposed detour routes as per Executive Order 12898 regarding environmental justice • Residents in the area adjacent to the viaduct would receive higher benefit from the opportunity to redevelop the area as a result of the proposed project. • Impact level would be the same for any bridge concept.	Same as Alignment 3A.	Same as Alignment 3A.
Utilities and Emergency Services	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Temporary or permanent relocation of some utility services may be required. • Disruption to railroad operations during construction. • Permanently reduce horizontal clearance between the center of existing tracks and the retrofitted columns of the viaduct by approximately 1 ft. • Partial lane closure on the 6th Street Viaduct during the 2.5-year construction period would delay emergency response services.	• Temporary or permanent relocation of some utility services would be required. • Disruption to railroad operations during construction. • Full closure of the 6th Street Viaduct during the 4-year construction period would delay emergency response services. • Beneficial effects from providing the median and shoulders for emergency use. • Impact level would be the same for any bridge concept.	Same as Alignment 3A.	Same as Alignment 3A.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Traffic, Transportation, Pedestrian Facilities	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Construction would cause localized, temporary traffic disruption, sidewalk blockage, and parking space obstruction. • Possible loss of some currently permitted parking spaces underneath and along the local streets near the viaduct, creating inconvenience to area residents and businesses. • Minor disruption to public transit operations due to possible partial lane closures on the 6th Street Viaduct.	• Construction would require full closure of the 6th Street Viaduct for up to 4 years, resulting in traffic detours along the street network east and west of the river. Traffic analysis revealed up to 13 out of 31 intersections under study would be impacted by detouring traffic. Temporary access restriction would occur around the construction zone. Sidewalk closure requiring rerouting of pedestrians, and the loss of approximately 50 public parking spaces around the viaduct would also occur during the construction phase. • Loss of public parking spaces underneath and along the local streets near the viaduct would create inconvenience to area residents and businesses. • Travel delays of 5 to 10 minutes on public transit would occur from traffic detours. • Impact level would be the same for any bridge concept.	Same as Alignment 3A.	Same as Alignment 3A.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Visual/Aesthetic	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Retrofit would encase most of the existing columns with heavy steel covered by architectural mortar creating a more massive column configuration. In addition, construction of sheer walls between many of the columns would limit many of the views under the viaduct. Although these changes would likely go unnoticed by the general public from the distance, the view restriction under the viaduct deck could affect activities such as filming.	• Replacement of the viaduct and the subsequent loss of the historic landmark would impact the views to the structure. The various bridge replacement concepts would be expected to alter the existing views to varying degrees. The most notable visual impact would be from replacement of the historic structure with a new structure of contemporary design (i.e., the cable-supported design); however, each of the designs analyzed would maintain the vividness/memorability, unity, and visual intactness experienced with the current viaduct structure. • Modern Bridge Concepts 4, 4A, and 5 would likely include architectural lighting. It is likely that the accent lighting would be a noticeable addition to the nighttime viewscape.	Same as Alignment 3A.	Same as Alignment 3A.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Cultural Resources	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• The project area has the potential for buried archaeological materials to be encountered during ground disturbance. • Retrofitting would alter and/or destroy the historic materials, features, and spatial relationships that characterize the viaduct, resulting in an adverse effect under 36 CFR 800.5(a)(2), criterion ii.	• The project area has the potential for buried archaeological materials to be encountered during ground disturbance. • Replacement of the viaduct would result in an adverse effect under 36 CFR 800.5(a)(2), criterion i. • The viaduct would be removed from the citywide inventory of historic bridges over the Los Angeles River, impacting the City's remaining monumental resources on a cumulative basis.	Same as Alignment 3A.	Same as Alignment 3A.
Hydrology and Floodplains	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	None	• Construction of Bridge Concept 1 would adversely affect the river hydraulics upstream of the viaduct due to the larger pier size. • Construction of other bridge types (2, 3, 4, 4A, 5) would have either negligible or beneficial impacts to the river hydraulics.	Same as Alignment 3A.	Same as Alignment 3A.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Water Quality and Stormwater Runoff	All stormwater runoff from the viaduct would continue to be discharged to the Los Angeles River without prior treatment. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• No permanent treatment best management practice (BMP) devices would be installed with this alternative; all stormwater runoff from the viaduct would continue to be discharged to the Los Angeles River without prior treatment.	• Stormwater from the new viaduct would be treated before discharging to the Los Angeles River. • Implementation of Bridge Concept 1 would result in a net increase of the placement of fill area in the Los Angeles River. Other bridge concepts would result in a net decrease of the placement of fill area in the river.	Same as Alignment 3A.	Same as Alignment 3A.
Geology, Soils, Seismicity	None, but the viaduct would continue to deteriorate from Alkali Silica Reaction (ASR) weakening the concrete elements. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Alternative 2 would design the retrofitted features to prevent collapse under a design seismic event. Due to access restrictions near the railroad, Bent 12 would not be retrofitted. The design life expectancy to prevent seismic collapse under this alternative is approximately 30 years. The viaduct would have to be replaced if it collapses during a major earthquake or the ASR deterioration renders it unsafe.	• Would have a beneficial effect because Alternative 3 would replace the existing severely damaged viaduct with a new viaduct that is designed to meet current seismic safety standards required by Caltrans. • Impact level would be the same for any bridge concept.	Same as Alignment 3A.	Same as Alignment 3A.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Paleontology	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• No previously recorded paleontological sites were identified during the records search; however, there is the potential to uncover fossil remains as a result of earth-moving activities.	Same as Alternative 2 for all bridge concepts	Same as Alternative 2 for all bridge concepts	Same as Alternative 2 for all bridge concepts

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Hazardous Waste/Materials	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Based on the results of a site investigation conducted along the existing viaduct corridor, soil and groundwater at the project site have the potential to be contaminated with volatile organic compounds (VOCs) and petroleum hydrocarbons; this could impact workers and the environment. • Bridge elements and buildings to be demolished may have asbestos-containing materials (ACM) in the form of coatings, insulation, and/or expansion joint compounds and lead-based paint (LBP) coatings, which could cause health effects to workers. • Costs associated with hazardous waste remediation and disposal under Retrofit Alternative are estimated at $6 million.	• Based on the results of a site investigation conducted along the existing viaduct corridor, soil and groundwater at the project site have the potential to be contaminated with VOCs and petroleum hydrocarbons; this could impact workers and the environment. • Bridge elements and buildings to be demolished may have ACM in the form of coatings, insulation, and/or expansion joint compounds and LBP coatings, which could cause health effects to workers. • Soils near US 101 may contain aerially deposited lead (ADL) generated by motor vehicle exhaust, which could cause health effects to workers. • Costs associated with hazardous waste remediation and disposal under Alternative 3 are estimated at $4.7 million. • Impact level would be the same for any bridge concept.	Same as Alternative 3A.	Same as Alternative 3A.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Air Quality	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Under the worst-case day of the construction period (i.e., viaduct closed and traffic detour in effect), the regional emissions of nitrogen oxides (NO_x) would exceed the daily significance threshold set forth by South Coast Air Quality Management District (SCAQMD).	Same as Alternative 2 for every bridge concept.	Same as Alternative 2 for every bridge concept.	Same as Alternative 2 for every bridge concept.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Noise and Vibration	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternative 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Noise from construction activities would be confined to a relatively narrow corridor extending along both sides of the roadway and corresponding to the construction sequence. Noise levels from construction activities at the nearest noise-sensitive receptors are predicted to be well below the City's limit of 75 A-weighted decibels (dBA). Minimal construction noise impacts are expected to occur. • During construction, the highest vibration levels would be caused by the impact pile driver. Buildings located adjacent to the pile driving location could temporarily experience the vibration effect. Since no fragile buildings or historic buildings are located within 50 ft of the proposed construction site, no adverse impacts from construction vibration to adjacent buildings are expected to occur.	Same as Alternative 2 for every bridge concept.	Same as Alternative 2 for every bridge concept.	Same as Alternative 2 for every bridge concept.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Biological Resources	None as long as viaduct remains in service. If the viaduct was determined to be unserviceable, indirect impacts would be the same as direct impacts under Alternatives 2 and 3, but the period the viaduct would be out of service for replacement could be up to 7 years.	• Limited biological resources exist within the viaduct footprint where construction activities would occur. No mature trees would be removed; hence, no adverse impacts to plant species are anticipated. Cliff swallows or roosting bats may establish new nests or roosts under the viaduct deck. A preconstruction survey would be conducted to confirm the absence or presence of any nesting birds or roosting bats. If found, steps would be taken to remove them and prevent establishment of new nests or roosts prior to the beginning of the nesting season.	• Ornamental trees within the survey area have a limited potential to support nesting birds, which are protected by the Migratory Bird Treaty Act. A preconstruction survey would be conducted to identify any mature trees subject to removal prior to the commencement of construction activities. Cliff swallows and roosting bats may establish new nests under the viaduct deck. A preconstruction survey would be conducted to confirm the absence or presence of any nesting birds or roosting bats. If found, steps would be taken to remove them and prevent establishment of new nests or roosts prior to the beginning of the nesting season. • Impact level would be the same for any bridge concept.	Same as Alignment 3A for every bridge concept.	Same as Alignment 3A for every bridge concept.
Cumulative Effect: Land Use	None as long as viaduct remains in service. Cumulative impacts in the event the viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	• No substantial cumulative effect with current land use policy. • Would potentially be in conflict with future High-Speed Rail Project and the Westside Subway Extension Project.	• More business relocation could occur within the vicinity of the proposed project because there are foreseeable projects proposed to be constructed within the same locality of the proposed project.	Same as Alignment 3A for every bridge concept.	Same as Alignment 3A for every bridge concept.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Cumulative Effect: Community Impacts	None as long as viaduct remains in service. Cumulative impacts in the event the viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	• Cumulative community impacts could occur to area residents and businesses because there are foreseeable projects scheduled to be constructed in nearby vicinity during the same period as the proposed project. • Low-income and/or minority populations living close to the viaduct would be subject to disproportionately higher impacts from concurrent construction activities.	• Cumulative community impacts could occur to area residents and businesses because there are foreseeable projects scheduled to be constructed in nearby vicinity during the same period as the proposed project. • Low-income and/or minority populations living close to the Viaduct would be subject to disproportionately higher impacts from concurrent construction activities. • More business relocations within the project vicinity could occur with implementation of other foreseeable projects; thus, impacting local businesses on a cumulative basis. • Impact level would be the same for any bridge concept.	Same as Alignment 3A for every bridge concept.	Same as Alignment 3A for every bridge concept.
Cumulative Effect: Traffic and Circulation	None as long as viaduct remains in service. Cumulative impacts in the event the viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	• Cumulative traffic impacts could occur during the 2.5-year project construction if other projects within the same locality are scheduled for construction during the same timeframe and utilize the same hauling routes.	• Cumulative traffic impacts would be larger than Alternative 2 due to the required closure of the 6th Street Viaduct during the 4-year construction period.	Same as Alignment 3A.	Same as Alignment 3A.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Cumulative Effect: Visual and Aesthetics	None as long as viaduct remains in service. Cumulative impacts in the event the viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	• Alteration of the historic fabric of the 6th Street Viaduct would not result in cumulative impacts to visual and aesthetic resources within the landscape units surrounding the 6th Street Viaduct.	• The new viaduct could have iconic value to the community and City. Given the highly urban and industrial nature of the development within and adjacent to the project area, implementation of the future foreseeable projects along with the Replacement Alternative for this project would not appreciably change the existing character of the area.	Same as Alignment 3A.	Same as Alignment 3A.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Cumulative Effect: Cultural Resources	None as long as viaduct remains in service. Cumulative impacts in the event the viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	• Implementation of the Retrofit Alternative would not contribute to cumulative effects on archeological resources within the APE or citywide. • Alteration of the historic fabric of the 6th Street Viaduct under Retrofit Alternative would not constitute cumulative impacts to historic resources within the APE or citywide when considered together with other foreseeable projects. • The 6th Street Viaduct is designated City of Los Angeles HCM #905, as one of 11 historic Los Angeles River bridges (HCM #900 – #910). The 6th Street Viaduct contributes to City historic themes; implementation of the Retrofit Alternative would not impact the City's historic-cultural monument bridges on a cumulative basis.	• Implementation of the Replacement Alternative would not contribute to cumulative effects on archeological resources within the APE or citywide. • Cumulative impacts on the loss of historic resources within the APE or Citywide cannot be determined since there is no known information about the loss of other historic resources as a result of other foreseeable projects. • Removal of the 6th Street Viaduct under the Replacement Alternative would impact the City's historic-cultural monument bridges on a cumulative basis.	• Same as Alignment 3A.	• Same as Alignment 3A.

Table 2. Summary of Environmental Evaluation

Area of Impact	Alternative 1 No Action	Alternative 2 Retrofit	Alternative 3 Alignment 3A	Alternative 3 Alignment 3B	Alternative 3 Alignment 3C
Cumulative Effect: Air Quality	None as long as viaduct remains in service. Cumulative impacts in the event the viaduct was determined unserviceable cannot be accurately determined due the unpredictable timing. In addition, other projects contributing to cumulative effects might be different at the time of occurrence.	• Cumulative air pollutant emissions could occur if several projects within the vicinity of the viaduct are under construction at the same time during the 2.5-year construction duration.	• Cumulative air pollutant emissions could occur because there are foreseeable projects scheduled to be constructed in the vicinity during the same period as the proposed project. Impact level would be the same for any bridge concept.	Same as Alignment 3A for every bridge concept.	Same as Alignment 3A for every bridge concept.
Section 4(f) Resources	None	• Would have a permanent, adverse impact on historic 6th Street Viaduct.	• Would have a permanent, adverse impact on historic 6th Street Viaduct.	Same as Alignment 3A.	Same as Alignment 3A.

5. Avoidance, Minimization, and Mitigation Measures

The proposed project alternatives have been designed to avoid or minimize potential environmental impacts. Mitigation measures are proposed when avoidance and minimization attempts could not fully resolve the impacts. Several measures outlined in this document are the requirements of applicable laws, regulations, ordinances, and formally adopted City standards (e.g., Los Angeles Municipal Code and Bureau of Engineering Standard Plans), which govern the City and its contractors. Moreover, many measures are part of the requirements of the uniform practices established by the Southern California Chapter of the American Public Works Association (e.g., Standard Specifications for Public Works Construction and the Work Area Traffic Control Handbook) (WATCH Manual) as specifically adapted by the City of Los Angeles (e.g., The City of Los Angeles Department of Public Works Additions and Amendments to the Standard Specifications For Public Works Construction [aka "The Brown Book," formerly Standard Plan S-610]).

Table 3 summarizes proposed specific mitigation measures to minimize impacts with implementation of Alternatives 2 and 3.

Table 3. Proposed Specific Mitigation Measures

Environmental Factor	Mitigation Measures	
	Alternative 2 – Retrofit	Alternative 3 – Replacement
Community Impacts and Environmental Justice	• Develop a construction staging plan and Traffic Management Plan (TMP) in close coordination with the members of the Downtown Construction Traffic Management Committee and with agencies or developers responsible for other planned projects in the immediate vicinity of the proposed project to minimize direct and cumulative construction impacts on the community. The TMP shall also identify and provide alternate traffic detour routes, construction materials hauling routes, bus stops, transit routes and operation hours, pedestrian routes, and residential and commercial access routes to be used during the construction period. • Inform key event organizers in the Boyle Heights and Downtown Arts District communities of the construction schedule to avoid conflict on the use of areas near the 6th Street Viaduct for any festive events. • If homeless people were found within the construction site, the Los Angeles Homeless Services Authority (LAHSA) will be contacted to provide services to any homeless people found within the project area prior to construction.	• Conduct a public outreach program to keep residents, businesses, utility service providers, emergency service providers (including Fire and Police Departments) within the project area informed of the project construction schedule, demolition plan, material hauling plan, relocation plans and assistance programs, traffic-impacted areas, and the TMP and other relevant project information. • Require the construction contractor to submit the means and methods for demolition for City of Los Angeles Bureau of Engineering (LABOE) review and approval. During the demolition period, construction inspectors shall ensure the contractors adhere to the approved plan. • Participate in ongoing meetings with the LABOE Los Angeles River Project Office (LARPO) to implement elements of the Los Angeles River Revitalization Master Plan (LARRMP) related to Greening Concept objectives to improve the area near the 6th Street Viaduct and provide potential future connections to the river corridor from the viaduct. In addition to LARPO, meetings will include, but are not limited to, the Planning Department, the Recreation and Parks Department, and the Community Redevelopment Agency.

Table 3. Proposed Specific Mitigation Measures

Environmental Factor	Mitigation Measures	
	Alternative 2 – Retrofit	Alternative 3 – Replacement
		• Provide improvements to enhance the aesthetics and pedestrian safety of 11 affected intersections along the proposed detour routes. Types of improvements will be developed with public input and may include, but not be limited to, the following: decorative crosswalk with community theme; raised median with hardscape treatment where space allows; and larger corner cuts to allow improved truck turning radius. • Develop a construction staging plan and TMP in close coordination with members of the Downtown Construction Traffic Management Committee and with agencies or developers responsible for other planned projects in the immediate vicinity of the proposed project to minimize direct and cumulative construction impacts on the community. The TMP shall also identify and provide alternate traffic detour routes, construction materials hauling routes, bus stops, transit routes and operation hours, pedestrian and bicycle routes, and residential and commercial access routes to be used during the construction period. • Inform key event organizers in the Boyle Heights and Downtown Arts District communities of the construction schedule to avoid conflict on the use of areas near 6th Street Viaduct for any festive events. • If homeless people were found within the construction site, the LAHSA will be contacted to provide services to any homeless people found within the project area prior to construction.
Utilities and Emergency Services	• Notify emergency service providers at least 2 weeks in advance of the project construction schedule. Provide detailed information on the construction schedule, roadway closures, traffic detour route maps, and expected congested intersections. • Coordinate with emergency service providers throughout the construction period to notify them of any changes in construction schedule, roadway closures, and detour routes.	• Conduct a public outreach program to keep residents, businesses, utility service providers, emergency service providers (including Fire and Police Departments) within the project area informed of the project construction schedule, demolition plan, material hauling plan, relocation plans and assistance programs, traffic-impacted areas, and the TMP and other relevant project information.
Traffic, Transportation and Pedestrian Facilities	No mitigation is required.	• Require the construction contractor to install new traffic signals at the intersection of 4th Street and US 101 Southbound On- and Off-Ramps, and connect to Los Angeles City Automated Traffic Surveillance and Control (ATSAC) System. • Require the construction contractor to restripe to add an eastbound right-turn lane at the intersection of 4th Street and Soto Street.
Aesthetics and Visual Resources	No mitigation is required.	• Establish an Aesthetics Advisory Committee (AAC) to provide input and advice on bridge aesthetics for the new structure during the final design stage of the project. The AAC will

Table 3. Proposed Specific Mitigation Measures

Environmental Factor	Mitigation Measures	
	Alternative 2 – Retrofit	Alternative 3 – Replacement
		participate in design review meetings and provide input on selected design elements including, but not limited to, colors, textures, lighting, railings, and community/City gateway monumental elements. • Participate in ongoing meetings with the LABOE and LARPO to implement elements of the LARRMP related to Greening Concept objectives to improve the area near the 6th Street Viaduct and provide potential future connections to the river corridor from the viaduct. In addition to LARPO, meetings will include, but are not limited to, the Planning Department, the Recreation and Parks Department, and the Community Redevelopment Agency.
Cultural/ Historical Resources	• Incorporate all applicable Secretary of Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68) into the design of retrofitting components. • Prior to any viaduct alteration or construction activities, contact the National Park Service Western Region Office (NPS) in Oakland, California, to determine the degree of additional recordation required for the property beyond that provided in 1996 (Historic American Engineering Record [HAER] No. CA-176). Unless otherwise agreed to by the NPS Historic American Buildings Survey (HABS)/HAER, Caltrans and the City shall ensure that all documentation is completed and accepted by HABS/HAER before the viaduct is altered or demolished. • Install two new freestanding informative permanent metal plaques or signage at both ends of the bridge at public locations that provide a brief history of the bridge, its engineering features and characteristics, and the reasons it was replaced. • Establish an Environmentally Sensitive Area (ESA) Action Plan, which will include fencing of Site No. 19-003683, archaeological and Native American monitoring during ground-disturbing activities, and training of construction workers.	• Prior to the start of any work that could adversely affect any characteristics that qualify the 6th Street Viaduct (Bridge No. 53C-1880 and 53-0595) as a historic property, contact the NPS in Oakland, California, to determine if additional recordation is required for the historic property beyond that provided in "Historic American Engineering Record, 6th Street Bridge, HAER No. CA-176," dated May 7, 1996. The City shall provide NPS 30 calendar days to respond to their additional recordation determination request. If additional documentation is required, the City shall ensure that the additional documentation is completed and accepted by NPS before the viaduct is altered and/or demolished. The City shall prepare draft and final reports to be reviewed by NPS. • Upon completion, copies of the documentation prescribed in the above measure, consisting of an acid-free xerographic copy of the report, prepared on standard 8.5-inch by 11-inch paper, shall be retained by Caltrans District 7, deposited in the Caltrans Transportation History Library in Sacramento, and offered by the City to, at a minimum, the Los Angeles Public Library, Los Angeles Conservancy, Los Angeles City Historical Society, Historical Society of Southern California, City of Los Angeles Office of Historical Resources, and the California Office of Historic Preservation. • Work with the Los Angeles Public Library to place the historical information from the HABS/HAER report on a City Web site with a link to a public library Web site, such as the Los Angeles Public Library Web site, available to the public for a minimum period of 3 years. The information link will also be made available to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento for inclusion on their Web site. • Produce a documentary (motion picture or video) that addresses the history of the Los Angeles River Monument bridges, and their importance

Table 3. Proposed Specific Mitigation Measures

Environmental Factor	Mitigation Measures	
	Alternative 2 – Retrofit	Alternative 3 – Replacement
		and use within the broader contextual history of the City of Los Angeles. The motion picture or video shall be of broadcast quality, between 30- and 90-minute duration, and shall be made available to local broadcast stations, public access channels in the local cable systems, and requesting schools/libraries; one copy shall be submitted to the Caltrans Transportation Library and History Center at Caltrans Headquarters in Sacramento. • Produce and publish a booklet on the Historic Los Angeles River Bridges that addresses the history of the monumental concrete bridges of Los Angeles and this bridge's place in that history. The booklet shall be similar in general format to the "Historic Highway Bridges of California" published by Caltrans (1991) and shall include high-quality black-and-white images of the Los Angeles River Bridges, historic photographs or drawings, as appropriate, and text describing each of the bridges' location, year built, builder, bridge type, significant character-defining features, and its historic significance. City shall post an electronic version of the booklet on a City Web site and produce paper copies for distribution to local libraries, institutions, and historical societies. One copy shall be submitted to the Caltrans Transportation Library and History Center in Sacramento. City shall maintain the camera-ready master booklet and produce additional copies if there is demand. • Install two new freestanding informative permanent metal plaques or signage at both ends of the bridge at public locations that provide a brief history of the bridge, its engineering features and characteristics, and the reasons it was replaced. • Offer artifacts removed from the viaduct during demolition to local museums or other suitable facilities to be determined by the City. The accepting institutions shall arrange their own transportation to deliver the artifacts to designated locations. • Establish an ESA Action Plan, which will include fencing of Site No. 19-003683, archaeological and Native American monitoring during ground-disturbing activities, and training of construction workers.
Paleontology	• Retain a qualified paleontologist to develop and implement a Paleontological Monitoring Plan. Conduct paleontological monitoring onsite to inspect new exposures created by earth-moving activities in areas underlain by the older alluvium and at depths greater than 5 ft below current grade for the younger alluvium.	Same as Alternative 2.

Table 3. Proposed Specific Mitigation Measures

Environmental Factor	Mitigation Measures	
	Alternative 2 – Retrofit	Alternative 3 – Replacement
Air Quality	• Implement fugitive dust source controls by requiring the contractor to: – Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate. This applies to active and inactive sites during workdays, weekends, holidays, and windy conditions. – Install wind fencing and phase grading operations, where appropriate, and operate water trucks for stabilization of surfaces under windy conditions. • Implement mobile and stationary source controls by requiring the contractor to: – Reduce use, trips, and unnecessary idling from heavy equipment. – Maintain and tune engines per manufacturer's specifications to perform at U.S. Environmental Protection Agency (EPA) certification levels, where applicable, and at verified standards applicable to retrofit technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications. – Prohibit any tampering with engines and adhere to manufacturer's recommendation. – Lease new and clean equipment meeting the most stringent of applicable federal and state standards, if practicable. – Utilize EPA-registered particulate traps and other appropriate controls, where suitable, to reduce emissions of particulate matter and other pollutants at the construction site.	Same as Alternative 2.

Table 3. Proposed Specific Mitigation Measures

Environmental Factor	Mitigation Measures	
	Alternative 2 – Retrofit	Alternative 3 – Replacement
Air Quality	• Implement administrative controls by requiring its staff to: – Require the contractor to prepare an inventory of all equipment prior to construction and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking. (Suitability of control devices is based on whether there is reduced normal availability of the construction equipment due to increased downtime and/or power output, whether there may be significant damage caused to the construction equipment engine, or whether there may be a significant risk to nearby workers or the public.) – Where appropriate, use alternative fuels such as natural gas and electric. – Develop a construction traffic and parking management plan that minimizes interference and maintains traffic flow as part of the TMP.	Same as Alternative 2.
Biological Resources	• If construction occurs between February 1 and August 31, conduct a preconstruction survey by a qualified biologist to identify any active nesting or roosting locations. If active nests of migratory species occur within the construction area, then a temporary exclusion fence 50 ft in diameter shall be assembled around the nest. The biologist shall then monitor the site of active nests during the construction activities. Once the biologist determines that chicks have fledged or parents have abandoned the nest, the temporary fence can be removed and construction in such areas can proceed. If bats are found, bat proofing (exclusion) should be conducted outside of the breeding season (October 30 through March 1) after juvenile bats have learned to fly; exclusion should be staged to ensure that roosting sites in areas not currently under construction would be available at all times during the project to minimize the potential effects on bats.	• Prevent possible damage and injury to migratory birds by scheduling the removal of vegetation (whether native or horticultural landscaping) in the project area between September 1 and January 31. If initial vegetation removal and ground clearance cannot be avoided between February 1 and August 31, a qualified biologist shall conduct a preconstruction survey of trees and shrubbery for active nests. If active nests of migratory species occur within the construction area, then a temporary exclusion fence 50 ft in diameter shall be assembled around the nest. The biologist shall then monitor the site of active nests during the construction activities. Once the biologist determines that chicks have fledged or parents have abandoned the nest, the temporary fence can be removed and construction in such areas can proceed. If bats are found, bat proofing (exclusion) should be conducted outside of the breeding season (October 30 through March 1) after juvenile bats have learned to fly; exclusion should be staged to ensure that roosting sites in areas not currently under construction would be available at all times during the project to minimize the potential effects on bats.
Cumulative Effects	With implementation of the proposed mitigation measures under each individual resource; no additional mitigation measures would be required.	With implementation of the proposed mitigation measures under each individual resource; no additional mitigation measures would be required.

6. Areas of Controversy

Under both build alternatives for this project, the proposed undertaking would have an adverse effect on the 6th Street Viaduct pursuant to provisions of the National Historic Preservation Act (NHPA). Alternative 2 – Retrofit proposes work that would alter the character-defining features of the viaduct, potentially making the property ineligible for inclusion in the National Register of Historic Places (NRHP) by compromising the integrity of the historic structure. Alternative 3 proposes to replace the existing viaduct with the new structure, resulting in removal of the historic structure. The 6th Street Viaduct is 1 of 12 historically significant bridges/viaducts that cross the Los Angeles River and are considered important both for their distinctive architecture and for the critical role they played in the development of Los Angeles as a world-class city. The 6th Street Viaduct is also a visual landmark that links the communities of Boyle Heights and Downtown Los Angeles. City preservationists are concerned about the loss of the historic viaduct, and citizens of both communities have expressed concern at public meetings about the importance of this landmark to the community and how modifications to the structure or its removal could have an adverse effect on community values.

In public and agency meetings held during project development, support was expressed for opportunities created by viaduct replacement to redevelop the area surrounding the 6th Street Viaduct. This was viewed as an opportunity to enhance the quality of life of those living in the local community and the region. Examples of redevelopment and land use opportunities include adding more recreational area adjacent to the new viaduct; making the viaduct a landmark destination; development of retail and gallery space under the viaduct; provision of river access; and making the area around the viaduct a defensible space to facilitate the elimination of crime and homeless occupation. While these opportunities are compatible with the objectives and plans of the LARRMP, redevelopment of this land for nonindustrial uses would be inconsistent with local community plans that aim to preserve the industrial land uses and protect employment within the community plan area.

Another area of public debate that arose during project meetings has been the wide-ranging preferences for replacement bridge types to be constructed for the main span over the Los Angeles River. Five bridge types have been evaluated by the PDT, bridge experts, and the general public. The replacement bridge types considered include a replication of the existing viaduct, variations of a contemporary arch structure, and ultra-modern “extradosed” (cable-supported) structures.

7. Preferred Alternative Identification

After comparing and weighing the benefits and impacts of all of the feasible alternatives, as summarized in Table 1 and described in detail in the EIR/EIS, the PDT has identified the Replacement Alternative (Alternative 3) with Alignment 3B and the principle of Bridge Concept 4 as the Preferred Alternative for the 6th Street Viaduct Seismic Improvement Project. The City and Caltrans have made the final determination of the project's impact on the environment based on the comments and concerns expressed during the public review period and the results of the engineering and environmental technical analysis. The Preferred Alternative would attain the purpose of the project.

Although the Retrofit Alternative (Alternative 2) would have lower construction costs and would preserve some historic elements of the viaduct compared to the Replacement Alternative, it would not be able to stop, reverse, or mitigate the ASR deterioration and, consequently, would have the highest life-cycle cost. The Retrofit Alternative would only meet a "no collapse" standard; significant damage could occur in a major earthquake. In addition, it would not correct the geometric deficiencies of the existing viaduct and would still adversely affect this historic resource. The Retrofit Alternative would partly achieve the project's purpose; however, due to the deficiencies described above, it is inferior to the Replacement Alternative. The PDT determination was presented in the Draft EIR/EIS, and after consideration of public comments on the Draft EIR/EIS, the Retrofit Alternative remains not recommended.

To identify a preferred alternative based on the highest ranked replacement alignment and bridge concept, specific criteria were used to evaluate the different bridge structures and alignment alternatives. Seismic performance, geometric flexibility, roadway and pedestrian safety, historical compatibility, public support, environmental impacts, construction cost, and constructability were among the set of criteria used for the evaluation of the bridge concepts. The criteria for the evaluation of alignments consisted of, but were not limited to, such factors as operational safety, ROW impacts to properties, construction schedule, and industrial preservation. Alignment 3B and Bridge Concept 4A received the highest score. As a result, after careful consideration of all the aforementioned concerns, and in further consideration of all other environmental analyses contained in the EIR/EIS, the Replacement Alternative with Alignment 3B and the principle of Bridge Concept 4 was selected as the Preferred Alternative.

8. Public and Agency Involvement

The CEQ NEPA Regulations (40 CFR Part 1500 *et seq*.) and the State CEQA Guidelines (14 CCR, Sections 15082-15083) recommend that federal, state, and local lead agencies use a public scoping process to help identify the various issues to be addressed in the environmental document. Scoping allows public agencies and the general public to learn about the proposed

project and to provide input regarding alternatives, environmental impacts, and mitigation measures to be evaluated.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (23 U.S.C. §139), authorizing U.S. highway and transit programs, has provisions intended to improve the environmental review process for transportation projects. One of the key requirements of SAFETEA-LU related to public involvement is that the lead agency must provide the "opportunity for involvement" to participating agencies and the public in developing the purpose and need and the range of alternatives to be considered for a proposed project.

Public involvement, agency coordination, and Native American tribal coordination were carried out during the project development process by means of formal scoping meetings, a community advisory committee (CAC), participating agency coordination meetings, stakeholder meetings, potentially affected property owner meetings, political representative meetings, notification letters, and the creation and maintenance of a project Web site.

Ongoing coordination meetings with affected business owners and groups, government agencies, railroads, and utility companies have been conducted to update interested parties on the status of the proposed project, obtain input from public and agency, and resolve issues. Letters describing the proposed project and inviting comment were sent to Native American groups and other individuals known to have an interest in the proposed project.

8.1 Initial Project Information Meetings

In October 2006, prior to commencement of the formal environmental review process, the PDT initiated widespread notification of government agencies and the public about proposed project information meetings. Notices were mailed to interested agencies and residents within a 2,000-ft radius of the viaduct; published in newspapers (the *Los Angeles Times* and *La Opinion*); and hand-delivered to residents and property owners in the immediate vicinity of the viaduct. Two project information meetings were held – one on January 23, 2007, at the Artshare Los Angeles (west side of the Los Angeles River) and one on January 25, 2007, at St. Isabel Church (east side of the Los Angeles River). Approximately 80 people attended the meetings, listened to a project information presentation, asked questions, and provided suggestions.

Numerous other project information meetings were conducted upon request. These meetings included the Boyle Heights Neighborhood Council (BHNC) Land Use Committee (February 13, 2007), the BHNC Quadrant 4 (March 12, 2007), the Downtown Los Angeles Neighborhood Council (March 13, 2007), the BHNC Quadrant 3 (May 9, 2007), the Boyle Heights Resident Homeowner Association (May 19, 2007), the Downtown Arts District Business Improvement District (October 3, 2007), Los Angeles Conservancy (October 29, 2007), and the American Institute of Architects (April 23, 2008).

8.2 Community Advisory Committee Formation

Following the proposed project information meetings, a CAC was formed. Twenty-five (25) members were identified by the PDT based on their representation of affected neighborhoods, businesses, and various other stakeholders, and their willingness to serve as conduits between the project design team and their constituents. The CAC meetings began on March 29, 2007, and as of October 2011, the PDT has conducted 10 CAC meetings. The overall goals of the meetings are sharing project information, soliciting comments and input, and updating the members on the progress of project development.

8.3 Scoping Process

The scoping process was initiated by widespread notification of government agencies and the public via publication of a Notice of Intent (NOI) and a Notice of Preparation (NOP) announcing initiation of the EIR/EIS. The NOI was published in the *Federal Register* (Volume 72, Number 169) on August 31, 2007, in accordance with NEPA. The NOP was posted on the City of Los Angeles Web site[5], the project's public Web site[6], and with the Los Angeles County Clerk in accordance with CEQA. Other notification activities included placement of public notices in newspapers of general circulation; mailing the NOP to potentially affected government agencies, residents, and businesses; and translation of public documents from English to Spanish. Other project information was also posted on the City and public Web sites for public viewing.

Two separate scoping meetings were held on August 24, 2007. The meetings took place at the Artshare Los Angeles, located at 326 S. Hewitt Street in Los Angeles on the west side of the Los Angeles River. Another scoping meeting was held on August 26, 2007, at the Boyle Heights Youth Technology Center, located at 1600 E. 4th Street on the east side of the river within the Boyle Heights community.

8.4 Participating Agency Coordination

Section 6002 of SAFETEA-LU requires that all transportation projects requiring an EIS, for which the original NOI was published in the *Federal Register* after August 10, 2005, must have a plan established for coordinating public and agency participation and comment during the environmental review process. It is the responsibility of the lead agencies to develop the coordination plan to facilitate and document the interaction between the lead agencies and participating and cooperating agencies and the public.

As of July 1, 2007, Caltrans assumed FHWA's authority and responsibility for compliance with NEPA and other environmental laws. The Memorandum of Understanding (MOU) between FHWA

[5] http://eng.lacity.org/techdocs/emg/Environmental_Review_Documents.htm
[6] http://www.la6thstreetviaduct.org/TheProject/ documents/NOP_Public.pdf

and Caltrans concerning the State of California's Participation in the Surface Transportation Project Delivery Pilot Program allows Caltrans to serve as the federal lead agency on this project.

As part of the scoping process and in accordance with the Section 6002 requirement, Caltrans prepared a Coordination Plan for this proposed project. Fifteen (15) agencies were invited to be a participating agency. The following agencies accepted the invitation: City of Los Angeles Department of Recreation and Parks, Los Angeles County Metropolitan Transportation Authority, and Southern California Regional Rail Authority [Metrolink]. Three coordinating meetings were held during the scoping process.

8.5 Other Stakeholder Meetings

A series of meetings with affected property owners, community groups, interested agencies, and City interdepartmental staff was carried out throughout the project development period (2007-2009). At every meeting, representatives from the City of Los Angeles Department of Public Works Bureau of Engineering, Bridge Improvement Program, Caltrans, and the project consultant team presented project information and answered questions from the stakeholders. More than 30 stakeholder meetings were held as of the end of 2010.

8.6 Business Survey

A business survey was conducted to acquire information from businesses located within the vicinity of the project construction limits. The survey profiled business operations and identified issues and concerns. More than 100 survey questionnaires were distributed to local businesses within the project area. All affected businesses (40) were interviewed by the outreach team. The information collected was evaluated to determine the potential effects on businesses as a result of project implementation.

8.7 Public Review of Draft EIR/EIS

The Draft EIR/EIS was circulated for public review and comment between June 16, 2009, and August 24, 2009. The Notice of Availability (NOA) was published in the *Los Angeles Times* on June 11, 2009, and it was filed with the County Clerk on June 18, 2009, and the *Federal Register* on July 10, 2009 (Volume 73, Number 131 *EIS No. 20090226).* Three public hearings were conducted. During the 70-day public review period ending August 24, 2009, 26 written comment letters and e-mails pertaining to the Draft EIR/EIS were received. One additional comment was received in July 2010.

Verbal comments made by the public during the public hearings are summarized in table 4. The Transcripts of Public Hearing are kept on file at the City of Los Angeles Bureau of Engineering Bridge Improvement Program and the Caltrans District 7 Office. Written comments received on the

Draft EIR/EIS are summarized in Table 5. Responses to all written comments received are provided in the Final EIR/EIS.

Table 4. Comments/Questions and Responses Provided at the Public Hearings

Name	Comment/Question	Response	Page No. of Transcript
Boyle Heights Senior Center, 2839 East 3rd Street, Los Angeles, July 14, 2009, 6:00 p.m. to 8:30 p.m.			
Art Geilman, Shalom and Sons	Will there be any tax consequence for any local businesses? Will there be any state or federal money for disruption of business?	No. Yes, state and federal money. Mostly federal money.	33
Unknown Commenter	What plan is there to protect businesses and buildings that are along the alignment during demolition? How much of the property are you going to use in order to accomplish that? Are you going to use the property alongside the bridge to bring it down? Are you going to take some of the property, or are they going to be affected in any way?	Many means and methods would be used by the demolition contractor, generally in the form of debris walls, monitoring, and pre-inspection. Typically, specifications are made with the contractor. For instance, monitoring devices are installed to measure the vibration to determine the degrees of movement. Physical surveys of existing buildings to document their condition before, during, and after the start of demolition are also conducted. Screen walls may also be erected between existing buildings and the project. When the bridge is brought down vertically, then crews have to remove the debris and will be using local roads. Or, depending on the contractor, the bridge will be brought down in pieces, staying within the footprint of the existing bridge. Eventually the contractor will have to get outside that footprint to remove the bridge.	34
Rafael (no last name or residence given)	How will the bridge be taken down with bringing it down on our building, which is situated partly under the bridge, or blocking our access?	A vertical wall would be built between your building and the bridge. Your access is currently through City right-of-way underneath the bridge, so to address your concerns for access, we'd need to look at your lease agreement with the City.	36
Geilman (no last name given)	We wouldn't be able to access the building with forklifts and trucks if you're putting a wall there.	Currently, if you have access from underneath the bridge into your building, that access is through City right-of-way, and so we would have to look at the lease agreement that you currently have with the City in leasing their property to get access that's not on a public road.	38
Rosalie Guroa, Boyle Heights Resident	Whatever the final design of the bridge, I'd like it to be closer to the original, which is a landmark in our community. When the bridge is closed, it will have major impacts to my community, especially traffic on 4th Street. How are you addressing that?	The EIR is looking deeply into that issue. Traffic was modeled for the streets that traffic would be diverted to. We did traffic modeling of the streets that the traffic would be diverted to, like 4th Street, 7th Street, Soto, Boyle, and on the other side, Alameda, Central. We have traffic growing forecasts, and we have come up with measures to make it better, but it won't be perfect. We won't try to gloss over the fact that there will be impacts because there are 13,000 cars that we have to move off that bridge for about four years, so we're going to do our utmost with good design and planning and working with our partner agencies to make the affected intersections and streets run as smoothly as possible.	39
Arturo Vera, Boyle Heights Resident and	What will happen to the final bridge design if there's not sufficient	This project competes with other projects throughout the state of California and even at the federal level. Currently, the City is working on a financial plan to	42

Table 4. Comments/Questions and Responses Provided at the Public Hearings

Name	Comment/Question	Response	Page No. of Transcript
member of the Boyle Heights Homeowners Association	money?	figure out how to finance the project over a number of years. Financing is a key issue for the project.	
Victoria Torres, Boyle Heights Historical Society	Concerned over the speed limit on the widened and straightened bridge.	The speed limit on the bridge is not expected to be changed.	44
Carol Armstrong, City of LA River Project Office	Would like to see the project as a retrofit; if a new bridge is required, incorporate "riverly" elements. It is important that the high-speed rail and its future impacts be considered with this project.	The comment is acknowledged by the moderator.	45
Joaquin Castellanos, Boyle Heights Resident	The cable bridge looks beautiful, but there are already too many cables in the area. Prefers the bridge design to reflect the history of the community.	The comment is acknowledged by the moderator.	45
Jim Zant, Cal Hono Freight	Cal Hono Freight subleases a property that might be affected by the demolition of the bridge. The gate for the truck maneuvering area is adjacent to the pylons.	If the loading docks or travel/maneuvering area is underneath the bridge, that land is currently City right-of-way.	46
Mike Bueller, Los Angeles Conservancy	Regarding bridge design Alternative 1A, is it described somewhere, because it isn't included in the EIR? What are that alternative's differences other than additional columns in the railroad right-of-way? Why are right-of-way costs higher for the replication alternative? Can we assume that those parcels/ buildings designated for acquisition would be demolished?	The full replica abutment is not documented in the Draft EIR/EIS. It will all be documented in the Final EIR/EIS. The alternative has differences in construction and higher right-of-way costs/impacts. The bridge is wider and has more columns/footings. They would be demolished and businesses relocated.	46
Paul Habib, From Councilman Jose Huizar's Office	If Alternative 3B is the preferred alignment, it would cost a hundred million more and it affects the most amount of properties. Why was that selected as opposed to 3A or another one with a little less impact?	The PDT is looking into modifying Alignment 3B in an effort to minimize overall right-of-way takes.	51
Miguel Afaro, Boyle Heights Resident and Resurrection Church member	He and members of Resurrection Church prefer the futuristic look of the bridge. Some of the designs have big walls that will attract graffiti. Also the lighting and pylons in the middle of the street are a hazard.	The comment is acknowledged by the moderator.	51
Martha Cisneros, Boyle Heights Resident	In favor of the replica bridge and opposes all other bridges due to the fact that we are a historic area.	The comment is acknowledged by the moderator.	51
Gilman (No	Will there be any state or federal	Yes, mostly federal money	52

Table 4. Comments/Questions and Responses Provided at the Public Hearings

Name	Comment/Question	Response	Page No. of Transcript
last name given)	money for disruption of businesses.		
Inner City Arts Building, 720 Kohler Street, Los Angeles, July 21, 2009, 5:00 p.m. to 7:00 p.m.			
Alana Linn, Little Tokyo Resident	Would like future public hearings to be in public libraries or schools that are more accessible on bike. Would like the public hearings videotaped and available on the Internet. Believes a short break between presentation and question/answer sessions would be useful.	The comment is acknowledged by the moderator.	29
John McShane, Silver Seed Company	Silver Seed Company was not surveyed for the project.	Silver Seed Company was surveyed. (The survey of affected property owners was performed in September 2007. The survey team received the response to the questionnaire back from Silver Seed Company. The information from the survey form was summarized in Table 3.4-2).	34
Paul Habib, From Councilman Jose Huizar's Office	If Alternative 3B is the preferred alignment, it would cost a hundred million more and it affects the most amount of properties. Why was that selected as opposed to 3A or another one with a little less impact?	The PDT is looking into modifying Alignment 3B in an effort to minimize overall right-of-way takes. The design of the bridge is only 5 to 10% complete, so another 90% of design work still needs to be done. (Note, Mr. Habib also attended the July 14 meeting and would like to make the same comment for record).	36
Estella Lopez, Arts District BID	What is the radius that you are using for the outreach to the business owners around the impact zone? What is the impact zone on this side of the bridge? Concern is for the emerging live/work units in old industrial buildings that are not readily visible from the street.	A 2,000-foot radius around the bridge was used for mailing notices for this public hearing. At the start of the project, the community outreach and business outreach consultants canvassed the project area and have compiled a detailed database of inhabited and uninhabited businesses.	38
Jim Bickley, Spilo Worldwide	How will the modified 3B alternative affect properties on the northwest side of the bridge? So where is the reduction in right-of-way costs?	The alignment on the west side remains the same, so it's really no change to that area. The major change is along the south side.	41
Alana Linn, Little Tokyo Resident	The bridge and project could represent not only earthquake preparedness but green initiatives. It would be a very tangible way of presenting these important issues for all of Los Angeles.	The comment is acknowledged by the moderator.	42
Tiffany Sum, Downtown Resident	The LA River Revitalization Initiative is aligning with this project and may be aligned with cultural activities or interest with the development of the City.	The comment is acknowledged by the moderator.	43

Table 5. Summary of Written Comments Received on Draft EIR/EIS

Letter No.	Name	Date Received	Issues
1	Hill, Farrer & Burrill LLP (representing Spilo Worldwide)	June 29, 2009	• Concerns over acquisition of property • Impacts to access • Construction noise and dust
2	Federal Emergency Management Agency (FEMA)	July 13, 2009	• Comply with the Flood Insurance Rate Maps requirements • Comply with the National Flood Insurance Program requirements
3	Martha Cisneros	July 14, 2009	• In support of Alternative 1A and opposed to all others
4	Juaquin Castellanos	July 14, 2009	• In support of Alternative 1A
5	Victoria Torres	July 14, 2009	• In support of Alternative 1A
6	Kevin Break	July 14, 2009	• Ensure bridge is "pigeon-proof" • Provide outlets for 120/220/480 voltage to accommodate filming at the bridge
7	Art Herrera	July 14, 2009	• In support of Alternative 4A
8	Tiffany Sum	July 14, 2009	• In support of Alternative 4A
9	John Fisher	July 14, 2009	• Incorporate original design elements of existing bridge in the new bridge, including the pyramid shape, art deco light standards, and flower design (pictures provided)
10	Cal Hono Freight	July 15, 2009	• Concerns over potential partial acquisition and construction staging areas
11	City of Los Angeles Cultural Heritage Commission	July 30, 2009	• Designation as Historic-Cultural Monument (HCM) not mentioned in Draft Environmental Impact Report (EIR) Executive Summary • Identify alternatives that will allow bridge to retain its HCM status • Provide full replication/reconstruction alternative • Reconsider artificial constraints guiding project alternative analysis • Provide an additional partial preservation alternative • Inadequate mitigation measures for Alternative 3-Replacement • Potentially inappropriate location for the retention and reuse of the bridge's original steel arches • Effects of the proposed alternatives on architectural elements not physically connected to the bridge but in close proximity • Cite guidelines for Historic Rehabilitation and Replacement by the American Association of State Highway and Transportation Officials • MM-4 and MM-15 imply Memorandum of Agreement (MOA) already executed • State Historic Preservation Officer's (SHPO) role unclear in concurrence with a finding of eligibility and with the Historic Property Survey Report (HPSR) • Clarify CAC support of full replication alternative • Draft EIR presented information inconsistent with Community Advisory Committee (CAC) meeting minutes • Incorrect contact information for Office of Historic Resources
12	City of Los Angeles Bureau of Street Lighting (BSL)	July 28, 2009	• Nighttime glare and light pollution • Clarify historic lighting replacement objectives and design standards
13	Glacier Cold Storage	July 29, 2009	• Concerns over potential partial acquisition and construction staging areas
14	County of Los Angeles Department of Public Works	August 6, 2009	• In support of project • Impacts to Los Angeles River Revitalization Master Plan (LARRMP) objectives

Table 5. Summary of Written Comments Received on Draft EIR/EIS

Letter No.	Name	Date Received	Issues
			• River pollutants
15	State of California Public Utilities Commission	August 13, 2009	• Design criteria must comply with Commission General Orders • Arrange meeting with the Rail Crossings Engineering Section of the Public Utilities Commission
16	Central City East Association	August 14, 2009	• Impacts to Arts District during construction • Hire business impact specialist to accommodate businesses during construction • Open/recreational space creation
17	Stover Seed Company	August 14, 2009	• Impacts to 6th Street frontage road would eliminate access and reduce parking • Public involvement initiated too late in environmental process
18	Hill, Farrar & Burrill LLP (representing Spilo Worldwide)	August 14, 2009	• Cumulative effects of related projects (high-speed rail) • Concerns over potential acquisition • Impacts to access during construction • Amend mitigation measures to allow for more notice time for relocation/acquisition (90 days is insufficient notice) • Document typos
19	Hager Pacific Properties	August 17, 2009	• In support of Bridge Concept 4 and Alignment 3B • Concerns over potential acquisition • Impacts to access and parking • Construction time frame
20	Friends of the Los Angeles River	August 17, 2009	• Community identity and cohesion • In support of bridge replacement that is appropriate, unique, and iconic (pictures provided) – further design analysis required • Stakeholder involvement • Address LARRMP goals
21	California Archives	August 19, 2009	• Misleading description of existing bridge design • Historic identity • In support of bridge restoration
22	United States Environmental Protection Agency (EPA)	August 24, 2009	• In support of Alternatives 2 and 3 • Expand upon cumulative impacts analysis • Historic and cultural resources • Environmental justice impacts • Aquatic resources impacts • Air quality/construction mitigation • Bike/pedestrian facilities
23	Department of Interior	September 3, 2009	• Executed MOA should be included in the Final EIR/EIS • Mitigation measures should be included in the MOA
24	Office of Planning and Research	September 18, 2009	• No comments were received from any state agency
25	Gabrieleno Band of Mission Indians	October 30, 2009	• Native American monitor should be onsite during excavation activity
26	Community Redevelopment Agency of the City of Los Angeles (CRA/LA)	July 29, 2010	• Impacts to potential 500-600 Anderson Street Historic District

9. CEQA EIR Certification and NEPA EIS Record of Decision

The City, as the CEQA lead agency, has prepared a final EIR. The city council must certify that the EIR complies with CEQA, and that it reflects the City's independent judgment and analysis. Prior to approving the project, the council must consider the information in the EIR, make findings regarding all significant impacts, and adopt a statement of overriding considerations for impacts that are unavoidable. It must also adopt a program for monitoring or reporting on the mitigation measures, which have been set as conditions of approval to avoid or lessen the significant impacts of the project.

With respect to NEPA, Caltrans, as assigned by FHWA, will document and explain its decision regarding the preferred alternative, project impacts, and mitigation measures in a Record of Decision (ROD) in accordance with NEPA.

10. Contact Information

To inquire about the proposed project or to obtain a copy of the CD-ROM containing the full text of the Final EIR/EIS, please contact:

Linda Moore
Environmental Supervisor, Bridge Improvement Program
Environmental Management Group
Bureau of Engineering, Department of Public Works
City of Los Angeles
1149 S. Broadway, Suite 600
Los Angeles, CA 90015
Tel: 213-485-5751
E-mail: linda.moore@lacity.org

or

Carlos Montez
Branch Chief
Caltrans District 7, Environmental Planning Department
100 S. Main Street
Los Angeles, CA 90012
Tel: (213) 897-9116
E-mail: carlos.montez@dot.ca.gov